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4122-KKE5-S00**

## PREFACE

This Service Manual describes the technical features and servicing procedures for the **KYMCO XCITING 700**.

Section 1 contains the precautions for all operations stated in this manual. Read them carefully before any operation is started.

Section 2 is the removal/installation procedures for the frame covers which are subject to higher removal/installation frequency during maintenance and servicing operations.

Section 3 describes the inspection/adjustment procedures, safety rules and service information for each part, starting from periodic maintenance.

Sections 8 through 14 give instructions for disassembly, assembly and adjustment of engine parts. Section 15 through 17 is the removal/ installation of chassis. Section 18 through 21 states the testing and measuring methods of electrical equipment.

Most sections start with an assembly or system illustration and troubleshooting for the section. The subsequent pages give detailed procedures for the section.

The information and contents included in this manual may be different from the motorcycle in case specifications are changed.

KYMCO reserves the right to make changes at any time without notice and without incurring any obligation.

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## **1. GENERAL INFORMATION**

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### **GENERAL INFORMATION**

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## 1. GENERAL INFORMATION

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### SERIAL NUMBER

FRAME NUMBER(VIN):



VEHICLE IDENTIFICATION NUMBER(VIN):



Location of Engine Serial Number

# 1. GENERAL INFORMATION

## SPECIFICATIONS

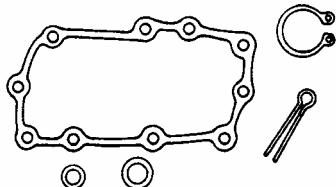
ITEM		SPECIFICATIONS	
Name		<b>MYROAD 700i</b>	
Overall length		2330 mm	
Overall width		830 mm	
Overall height		1510 mm	
Wheel base		1615 mm	
Engine type		D.O.H.C.	
Displacement		699.5 cc	
Fuel Used		92# nonleaded gasoline	
Dry weight	Front wheel	108 kg	
	Rear wheel	160 kg	
	Total	268 kg	
Curb weight	Front wheel	116 kg	
	Rear wheel	168 kg	
	Total	284 kg	
Tires	Front wheel	120/70-R15	
	Rear wheel	160/60-R14	
Ground clearance		135 mm	
Min. turning radius		2700 mm	
Engine	Starting system		Electric starter motor
	Type		Gasoline, 4-stroke
	Cylinder arrangement		Twin cylinder
	Combustion chamber type		ROOF
	Valve arrangement		O.H.C.
	Bore x stroke		76.9X75.3 mm
	Compression ratio		10.5:1
	Compression pressure		13 kgf/cm <sup>2</sup>
	Intake valve	Open	7° BTDC
		Close	40° ABDC
	Exhaust valve	Open	40° BBDC
		Close	10° ATDC
	Valve clearance (cold)	Intake	0.16 mm
		Exhaust	0.22 mm
	Idle speed		Rpm
	Lubrication System	Lubrication type	Forced pressure & Wet sump
		Oil pump type	Trochoid
		Oil filter type	Full-flow filtration
		Oil capacity	3 L
		Final reduction oil capacity	0.4 L
	Cooling Type		Liquid cooled

ITEM		SPECIFICATIONS	
Fuel System		Air cleaner type & No	
Fuel System		Fuel capacity	
Fuel System		Throttle Body Venturi dia	
Ignition System	Type	Full transistor ignition	
	Spark plug	DR8E	
	Ignition timing	ECU	
	Spark plug gap	0.6~0.7 mm	
Electrical Equipment	Battery	Capacity	12V12AH
	Clutch	Type	Dry, centrifugal automatic
Power Drive System	Type	Helical gear/spur gear	
	Transmission Gear	Operation	Automatic centrifugal Type
	Reduction Ratio	Type	CVT
Moving Device	Preliminary	0.99	
	Final	5.58	
	FR/RR tire rolling circumference		mm
Brake system	Tire pressure (rider only/60 kg)	Front	2 kg/cm <sup>2</sup>
		Rear	2.25 kg/cm <sup>2</sup>
Suspension type	Turning angle	Left	40°
		Right	40°
Damping Device	Rear	Disk brake	
	Front	Telescopic fork	
	Rear	Unit swing	
Frame type			Double cradle

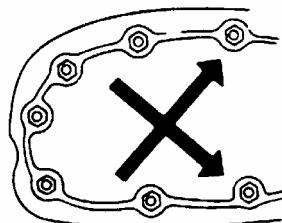
# 1. GENERAL INFORMATION

## SERVICE PRECAUTIONS

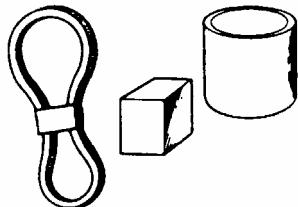
- Make sure to install new gaskets, O-rings, circlips, cotter pins, etc. when reassembling.



- When tightening bolts or nuts, begin with larger-diameter to smaller ones at several times, and tighten to the specified torque diagonally.



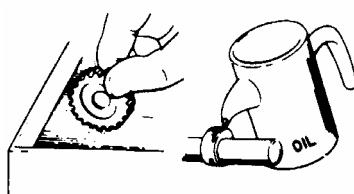
- Use genuine parts and lubricants.



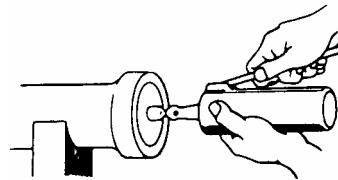
- When servicing the motorcycle, be sure to use special tools for removal and installation.



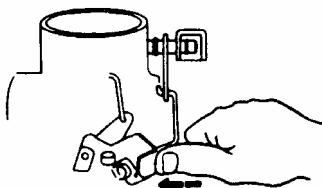
- After disassembly, clean removed parts. Lubricate sliding surfaces with engine oil before reassembly.



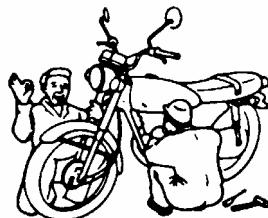
- Apply or add designated greases and lubricants to the specified lubrication points.



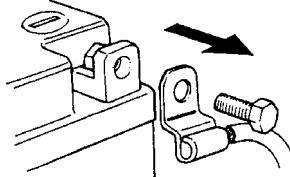
- After reassembly, check all parts for proper tightening and operation.



- When two persons work together, pay attention to the mutual working safety.

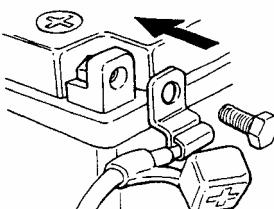


- Disconnect the battery negative (-) terminal before operation.
- When using a spanner or other tools, make sure not to damage the motorcycle surface.



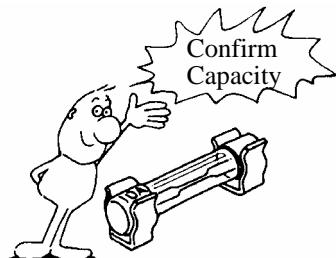
- After operation, check all connecting points, fasteners, and lines for proper connection and installation.

- When connecting the battery, the positive (+) terminal must be connected first.
- After connection, apply grease to the battery terminals.
- Terminal caps shall be installed securely.

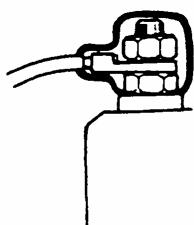


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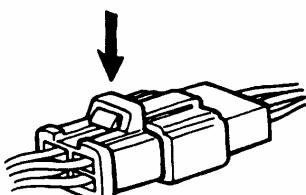
- If the fuse is burned out, find the cause and repair it. Replace it with a new one according to the specified capacity.



- After operation, terminal caps shall be installed securely.



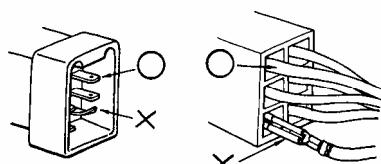
- When taking out the connector, the lock on the connector shall be released before operation.



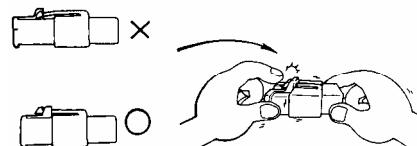
- Hold the connector body when connecting or disconnecting it.
- Do not pull the connector wire.



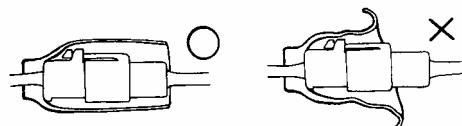
- Check if any connector terminal is bending, protruding or loose.



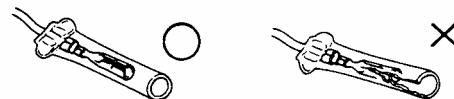
- The connector shall be inserted completely.
- If the double connector has a lock, lock it at the correct position.
- Check if there is any loose wire.



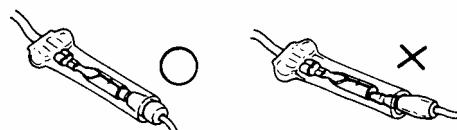
- Before connecting a terminal, check for damaged terminal cover or loose negative terminal.



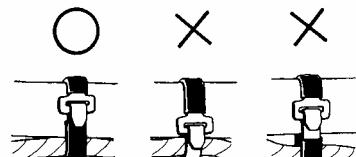
- Check the double connector cover for proper coverage and installation.



- Insert the terminal completely.
- Check the terminal cover for proper coverage.
- Do not make the terminal cover opening face up.

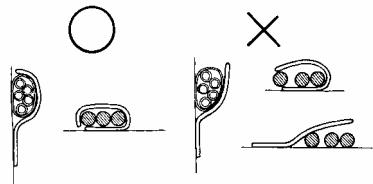


- Secure wire harnesses to the frame with their respective wire bands at the designated locations. Tighten the bands so that only the insulated surfaces contact the wire harnesses.



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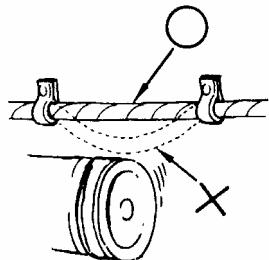
- After clamping, check each wire to make sure it is secure.



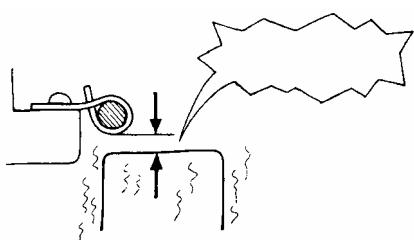
- Do not squeeze wires against the weld or its clamp.



- After clamping, check each harness to make sure that it is not interfering with any moving or sliding parts.

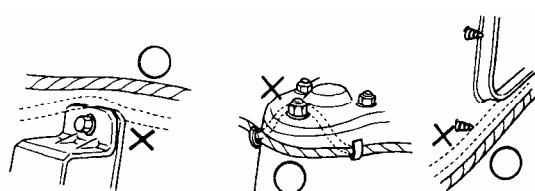


- When fixing the wire harnesses, do not make it contact the parts which will generate high heat.

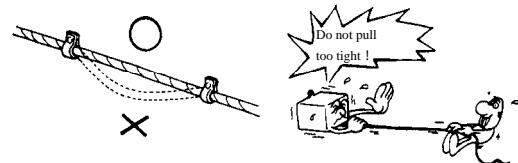


- Route wire harnesses to avoid sharp edges or corners. Avoid the projected ends of bolts and screws.

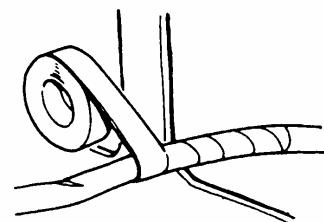
- Route wire harnesses passing through the side of bolts and screws. Avoid the projected ends of bolts and screws.



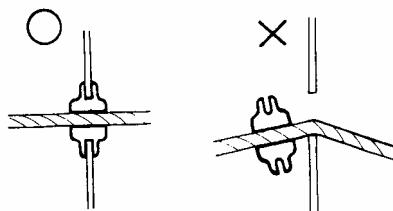
- Route harnesses so they are neither pulled tight nor have excessive slack.



- Protect wires and harnesses with electrical tape or tube if they contact a sharp edge or corner.

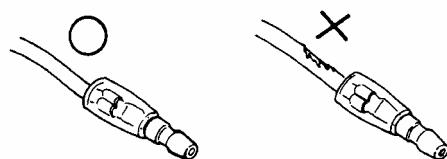


- When rubber protecting cover is used to protect the wire harnesses, it shall be installed securely.

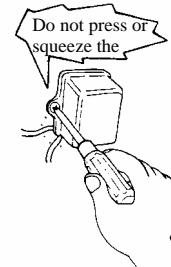


- Do not break the sheath of wire.

- If a wire or harness is with a broken sheath, repair by wrapping it with protective tape or replace it.

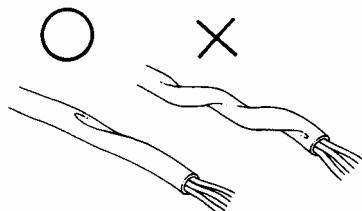


- When installing other parts, do not press or squeeze the wires.

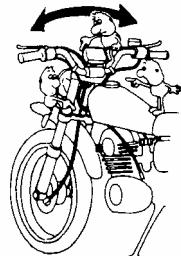


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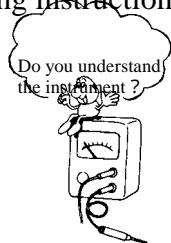
- After routing, check that the wire harnesses are not twisted or kinked.



- Wire harnesses routed along with handlebar should not be pulled tight, have excessive slack or interfere with adjacent or surrounding parts in all steering positions.



- When a testing device is used, make sure to understand the operating methods thoroughly and operate according to the operating instructions.



- Be careful not to drop any parts.



- When rust is found on a terminal, remove the rust with sand paper or equivalent before connecting.



### ■ Symbols:

The following symbols represent the servicing methods and cautions included in this service manual.



Engine Oil

: Apply engine oil to the specified points. (Use designated engine oil for lubrication.)



Grease

: Apply grease for lubrication.



Gear Oil

: Transmission Gear Oil (90#)



: Note

# 1. GENERAL INFORMATION

## TORQUE VALUES

### STANDARD TORQUE VALUES

Item	Torque Kg-m	Item	Torque Kgf-m
5mm bolt and nut	0.5	5mm screw	0.4
6mm bolt and nut	1.0	6mm screw, SH bolt	0.9
8mm bolt and nut	2.2	6mm flange bolt and nut	1.2
10mm bolt and nut	3.5	8mm flange bolt and nut	2.7
12mm bolt and nut	5.5	10mm flange bolt and nut	4.0

Torque specifications listed below are for important fasteners.

### ENGINE

NO	ITEM	THREAD DWG .NO	DWG. NAME	THREAD SIZE AND TYPE	TORQUE		PR VALUES N·m	PR VALUES Kgf·cm	REMARKS
					N·m	Kgf·m			
1	HEAD COVER	90017-KKE5-E000	BOLT HEAD COVER	M6X1.0	7.8 ~11.8	0.8~1.2	9.8	100	NONE
2	CAM SPROCKET	90083-KED9-9000	BOLT KNOCK 6MM	M6X1.0	7.8 ~11.8	0.8~1.2	9.8	100	APPLY THREAD LOCK
3	CYLINDER HEAD	90007-KKE5-E000	BOLT WASHER 10X160	M10X1.25	47.1 ~51.0	4.8~5.2	49.1	500	APPLY OIL
4	CYLINDER HEAD	90008-KKE5-E000	BOLT WASHER 10X170	M10X1.25	47.1 ~51.0	4.8~5.2	49.1	500	APPLY OIL
5	HEAD	98059-58916-00	SPARK PLUG CR8E	M10X1.0	9.8 ~13.7	1~1.4	11.8	120	NONE
6	CAM SHAFT HOLDER	96001-06045-08	BOLT FLANGE SH 6*45	M6X1.0	7.8~11.8	0.8~1.2	9.8	100	APPLY OIL
7	HEAD	12205-KE8-3000	BOLT SEALING 12MM	M12X1.0	14.7 ~19.6	1.5~2	17.2	175	APPLY THREAD LOCK
8	OIL PUMP SHAFT	94050-10080	NUT FLANGE 10MM (C)	M10X1.25	19.6 ~29.4	2~3	24.5	250	APPLY Loctite 243
9	TENSIONER	14531-KED9-9000	PIVOT TENSION GUIDE	M8X1.25	17.7 ~21.6	1.8~2.2	19.6	200	APPLY OIL
10	CONROD	13213-KKE5-E000	BOLT CONN ROD	M10X1.0	580.8~62.7	6.0~6.4	60.8	620	APPLY OIL 10W/30
11	CRANK SHAFT	90015-KED9-9000	BOLT UBS 10X35	M10X1.0	73.5~83.4	7.5 ~8.5	78.4	800	APPLY OIL ACG/CRANKSHAFT TAPPER AREA APPLY Loctite 648
12	CRANK SHAFT	90241-KKE5-E000	NUT M30X1.0 ( L.H. )	M30X1.0 ( L.H. )	127.5~147.1	13~15	137.3	1400	APPLY Loctite 243
13	ONE WAY/ ACG	96600-08015-10	SOCKET BOLT 8X15(B)	M8X1.5	24.5 ~34.3	2.5~3.5	29.4	300	APPLY THREAD LOCK
14	R/L CRANK CASE	90084-KKE5-E000	CAP OIL CHANNEL	M14X1.5	11.8 ~17.7	1.2~1.8	14.7	150	NONE
15	L CRANK CASE	9052A-GFY6-9500	BOLT ASSY DRAIN PLUG	M12X1.5	19.6 ~29.4	2~3	24.5	250	NONE
16	R CASE	35500-KED9-9000	SW ASSY OIL PRESSURE	PT 1/8	9.8 ~13.7	1~1.4	11.8	120	APPLY SEAL
17	L CRANK CASE	12361-GFY6-9010	HOLE CAP TAPPET ADJUSTING	M30X1.5	9.8 ~19.6	1~2	14.7	150	NONE
18	L CRANK CASE	15421-LBA2-E000	BOLT, OIL COOLER	M20X1.5	11.8 ~17.7	1.2~1.8	14.7	150	NONE
19	L CRANK CASE	1541A-LBA2-E000	ELEMENT COMP.,OIL FILTER	M20X1.5	23.5 ~29.4	2.4~3	26.5	270	NONE
20	OIL PUMP	95701-06025-08	BOLT FLANGE 6X25	M6X1.0	7.8 ~11.8	0.8~1.2	9.8	100	NONE
21	BALANCER SHAFT	90231-KEC2-9000	NUT HEX 16MM.L H	M16X1.0	39.2 ~49.1	4~5	44.1	450	APPLY Loctite 243
22	MAIN SHAFT	90242-KKE5-E000	NUT LOCK 22 MM (R.H.)	M22X1.0	127.5~147.1	13~15	137.3	1400	APPLY Loctite 243
23	COUNTER SHAFT	90023-KKE5-E000	BOLT 12X45	M12X1.25	107.9~127.5	11~13	122.3	1200	APPLY OIL
24	DRIVE SHAFT	90201-KKE5-E000	NUT,FLANGE 16MM	M16X1.0	78.5 ~ 88.3	8 ~ 9	86.6	850	APPLY OIL
25	MISSION COVER	95701-08035-08 95701-08045-08	BOLT FLANGE 8*35 (C) BOLT FLANGE 8*45 (C)	M8X1.25	24.5~28.4	2.5~2.9	26.5	270	NONE
26	FLANGE, SWING ARM CASE	90010-KKE5-E000	SPOCKET BOLT 8x22 (B)	M8X1.25	24.5 ~34.3	2.5~3.5	29.4	300	APPLY THREAD LOCK NYLOK BLUE PATCH
27	PIVOT, R SWING ARM	90010-KKE5-E000	SPOCKET BOLT 8x22 (B)	M8X1.25	24.5 ~34.3	2.5~3.5	29.4	300	APPLY THREAD LOCK NYLOK BLUE PATCH
28	FLANGE, SWING ARM CASE	90010-KKE5-E100	SPOCKET BOLT 8x30 (B)	M8X1.25	24.5 ~34.3	2.5~3.5	29.4	300	APPLY THREAD LOCK NYLOK BLUE PATCH
29	ENCODER PLATE, PHASE	94050-06080	NUT FLANGE 6MM(C)	M6X1.0	7.8 ~11.8	0.8~1.2	9.8	100	NONE
30	MAIN GEAR A ASSY. (SPRING)	23115-KKE5-7000	BOLT M8X1.25	M8X1.25	31.4~35.3	3.2~3.6	33.3	340	APPLY THREAD LOCK NYLOK BLUE PATCH
31	CASE ASSY. LIFTER TENSIONER	90005-KKE5-E000	BOLT SPECIAL M18X1.0	M18X1.0	17.7 ~21.6	1.8~2.2	19.6	200	NONE
32	HEAD COMP.	90018-KKE5-E000	BOLT ,HEAD	M6X1.0	7.8 ~11.8	0.8~1.2	9.8	100	NONE

# 1. GENERAL INFORMATION

## FRAME

No.	ITEM	THREAD SIZE AND TYPE	TORQUE		PR Kgf-m	REMARK	THREAD DWG. No.
			Kgf-m	N-m			
1	STEERING						
	HANDLE BOLT	M8X1.25	2.4~3.0	24~30	2.7	FLANGE BOLT	95701-08035-07
	TOP BRIDGE BOLT	M8X1.25	2.4~3.0	24~30	2.7	——	96600-08025-07
	BOT BRIDGE BOLT	M8X1.25	2.4~3.0	24~30	2.7	FLANGE BOLT	95801-08040-06
	STEM(TOP BRIDGE)	M22X1.5	6.5~7.5	65~75	7.0	——	90201-LBA2-E000
	STEM LOCK	BC1	5.0~6.0	50~60	5.5	——	50306-196-0010
	RACE NUT(HEAD)	BC1	1.8~2.3	18~23	2.0	——	53220-LBA2-E000
	F/C TOP SCREW	M5X0.8	0.1~0.2	1~2	1.5	——	93891-05012-06
2	WHEEL						
	FR.AXLE	M18X1.5	3.0~3.6	30~36	3.3	——	44301-LBA2-E000
	RR.AXLE NUT	M20X1.5	12~14	120~140	13	U NUT	90306-LBA2-9000
3	SUSPENSION						
	FR AXLE PINCH BOLT	M8X1.25	2.0~2.6	20~26	2.3	——	96600-08035-07
	RR. CUSH	M10X1.25	3.5~4.5	35~45	4.0	FLANGE BOLT	95801-10040-00
4	BRAKE						
	FR.CALIPER	M8X1.25	2.4~3.0	24~30	2.7	——	90122-KEC8-9000
	RR.CALIPER	M8X1.25	2.4~3.0	24~30	2.7	——	90131-KUCU-9000
	BRK.OIL BOLT	M10X1.25	3.0~4.0	30~40	3.5	——	90145-MS9-6110-MI
	M/C HOLDER	M6X1.0	1.0~1.4	10~14	1.2	FLANGE BOLT	95701-06022-07
	C/P BLEEDER	M8X1.25	0.4~0.7	4~7	0.55	——	43352-KKD6-E000-HL
	MASTER CYLINDER CAP	M4X1.0	0.12~0.2	1.2~2	0.16	SCREW ,FLAT	93600-04012-1G
	BRK. OIL BOLT (Modulator, ABS)	M10X1.0	3.0~4.0	30~40	3.5	FLANGE BOLT	90145-LFHI-E000
	MODULATOR, ABS	M6X1.0	0.77~0.83	7.7~8.3	0.8	NUT	■
5	ENG. MOUNT						
	FRAME SIDE	M12X1.25	7.5~8.5	75~85	8.0	FLANGE BOLT	95801-12175-08
	FRAME SIDE	M12X1.25	7.5~8.5	75~85	8.0	NUT	90306-KLF0-004
	FRAME SIDE	M12X1.25	7.5~8.5	75~85	8.0	NUT	90306-KLF0-004
6	MUFFLER						
	EXH. PIPE	M6X1.0	1.0~1.4	10~14	1.2	NUT	90301-KGBG-9000
	MUFF.BRKT.	M10X1.25	3.2~3.8	32~38	3.5	FLANGE BOLT	95801-10050-07
7	REAR FORK	M10X1.25	3.5~4.5	35~45	4.0	SOCKET BOLT	96600-KKE5-E000
	BOLT,RR FORK PIVOT	M22X1.5	1.0~1.2	10~12	1.1	——	52106-KKE5-E100
	NUT FLANGE	M22X1.5	10~11	100~110	10.5	NUT	52108-KKE5-E100
8							
	START RELAY BOLT	M6X1.0	0.25~0.35	2.5~3.5	0.3	——	94050-06080
	SPDMT.SENSOR CABLE	M6X1.0	1.0~1.4	10~14	1.2	——	96001-06020-07
	RR. CARRIER	M8X1.25	2.0~2.8	20~28	2.4	WASHER BOLT	90105-KHB4-9000
	FUEL PUMP	M5X0.8	0.6~0.8	6~8	0.7	——	90302-LBF2-9000
	BRKT. MAIN STAND	M8X1.25	2.4~3.0	24~30	2.7	FLANGE BOLT	95701-08025-08
	SW ASSY, THERMO	M16X1.5	2.0~2.5	20~25	2.25	——	37760-LBB5-E000
	O2 SENSOR	M18X1.5	4.0~5.0	40~50	4.5	——	39450-LBF2-800
9	SET START MAG.	M6X1.0	0.25~0.35	2.5~3.5	0.3	——	94050-06080

## 1. GENERAL INFORMATION

### SPECIAL TOOLS

Tool Name	Tool No.	Remarks
Lock nut socket wrench	A120F00007	Steering stem removal or install
Oil seal & bearing installers	A120E00014	Oil seal & bearing install
Universal holder	A120E00017	Holding clutch for removal
Flywheel holder	A120E00021	A.C. generator flywheel holding
Bearing pullers	A120E00030	Bearing removal
Tappet adjuster	A120E00036	Tappet adjustment
Bearing pullers	A120E00037	Bearing removal
Valve spring compressor	A120E00040	Valve removal
Oil filter cartridge wrench	A120E00052	Cartridge removal or install
Clutch spring compressor	A120E00053	Clutch disassembly
Flywheel puller	A120E00061	A.C. generator flywheel removal
Clutch fixed bolt	A120E00038	Clutch
Balancer gear nut wrench	A120F00080	Balancer gear
Connecting rod bolts wrench	A120F00081	Connecting rod

# 1. GENERAL INFORMATION

## LUBRICATION POINTS

### ENGINE

Lubrication Points	Lubricant
Valve guide/valve stem movable part Camshaft protruding surface Valve rocker arm friction surface Camshaft drive chain Cylinder lock bolt and nut Piston surroundings and piston ring grooves Piston pin surroundings Cylinder inside wall Connecting rod/piston pin hole Connecting rod big end Crankshaft Balancer shaft Crankshaft one-way clutch movable part Oil pump drive chain Starter reduction gear engaging part O-ring face Oil seal lip	<ul style="list-style-type: none"> <li>•Genuine KYMCO Engine Oil (SAE 5W-50)</li> <li>•API SJ Engine Oil</li> </ul>
Drive gear shaft Countershaft Final gear Final gear shaft Transmission gearshaft bearing part	Transmission oil: SAE 90
A.C. generator connector	Adhesive

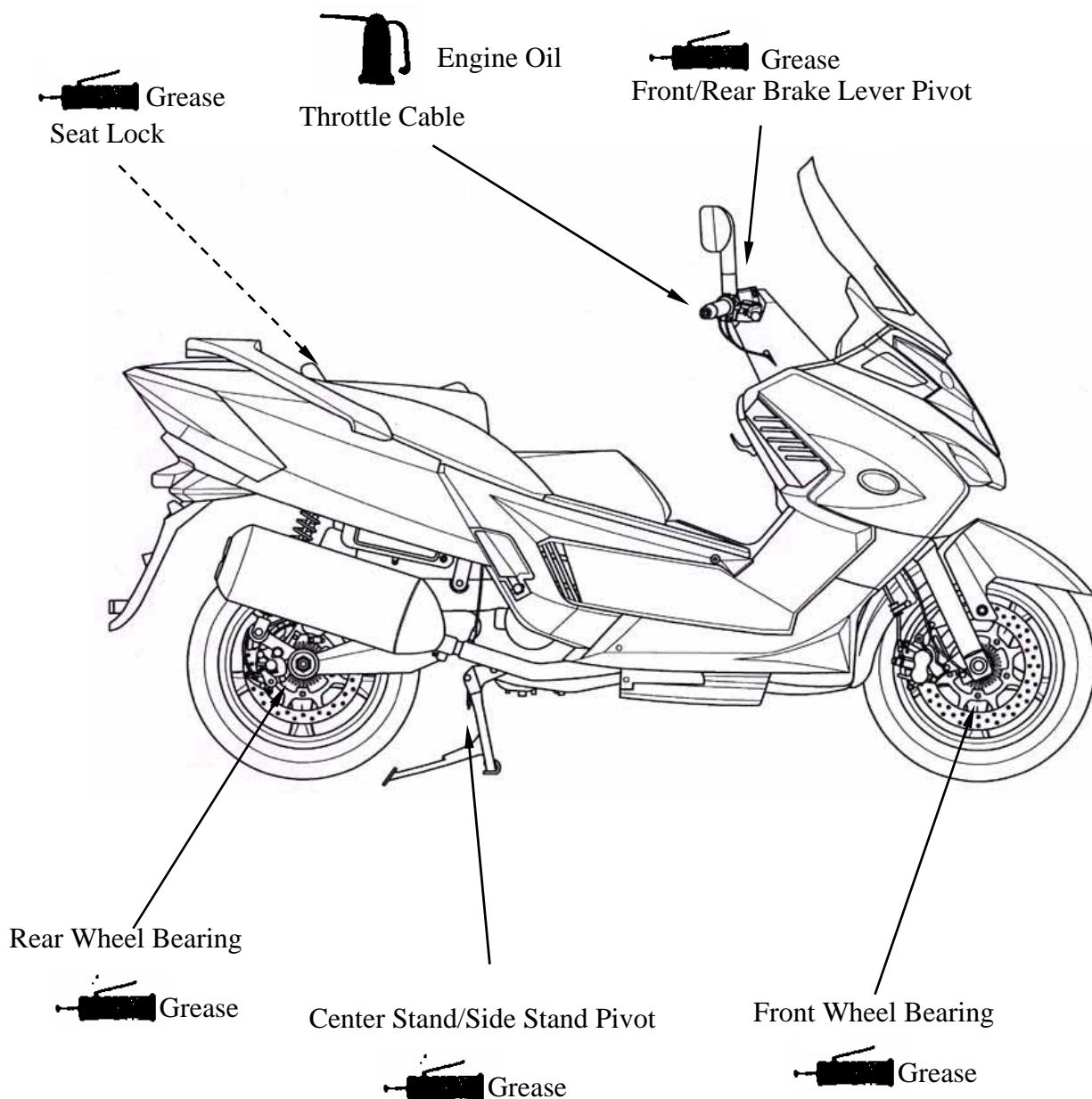
## 1. GENERAL INFORMATION

### FRAME

The following is the lubrication points for the frame.

Use general purpose grease for parts not listed.

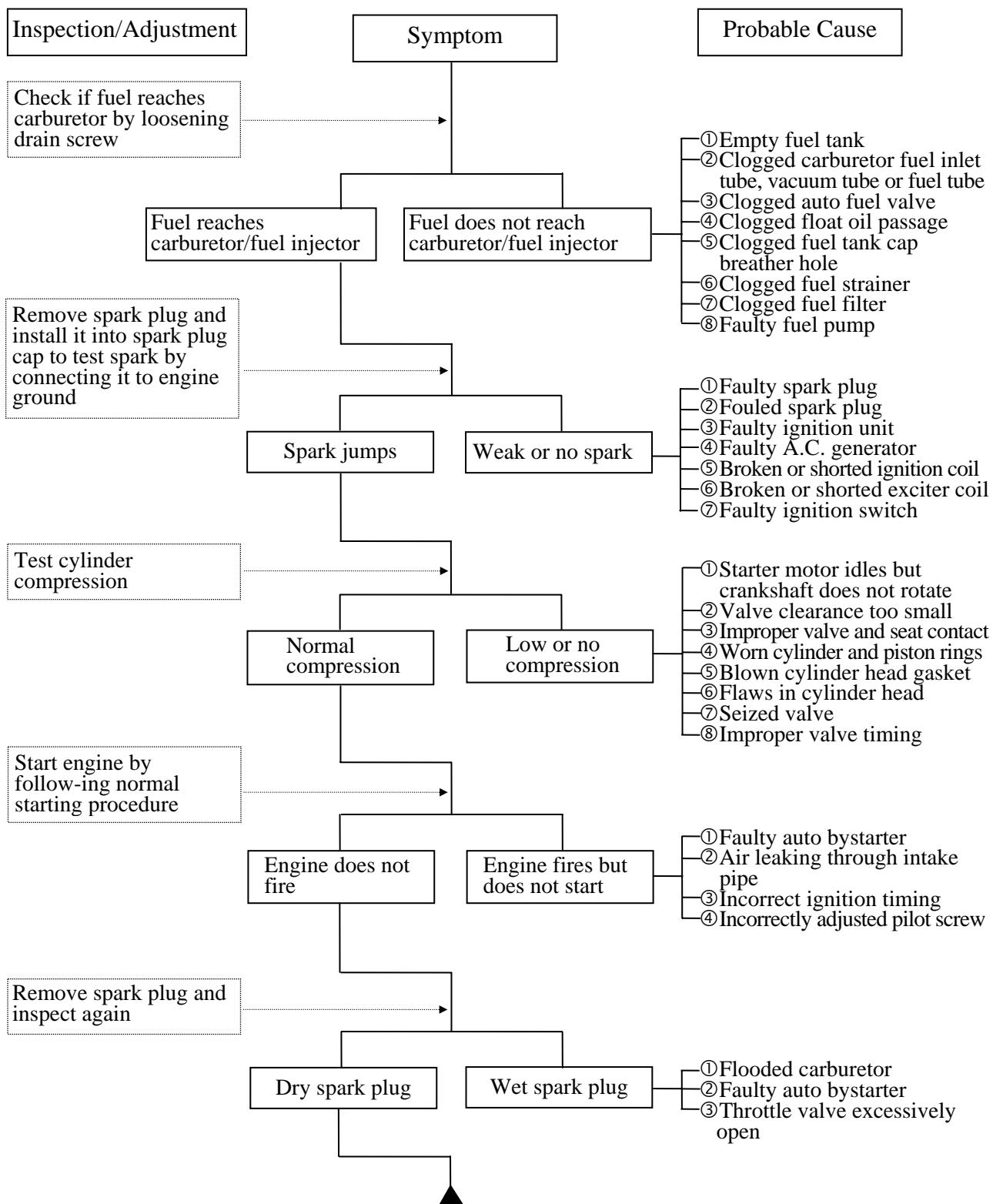
Apply clean engine oil or grease to cables and movable parts not specified. This will avoid abnormal noise and rise the durability of the motorcycle.



# 1. GENERAL INFORMATION

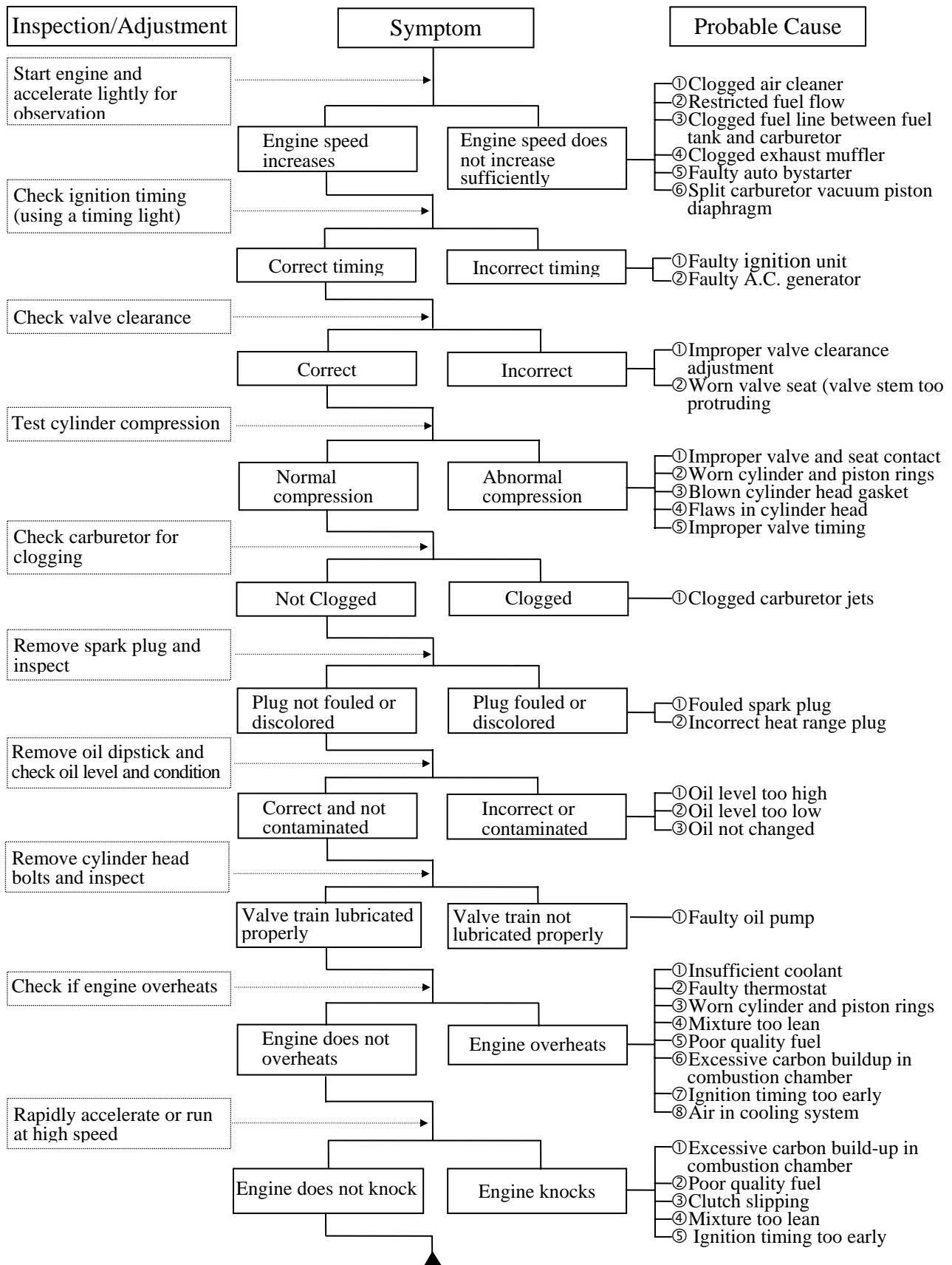
## TROUBLESHOOTING

### ENGINE WILL NOT START OR IS HARD TO START



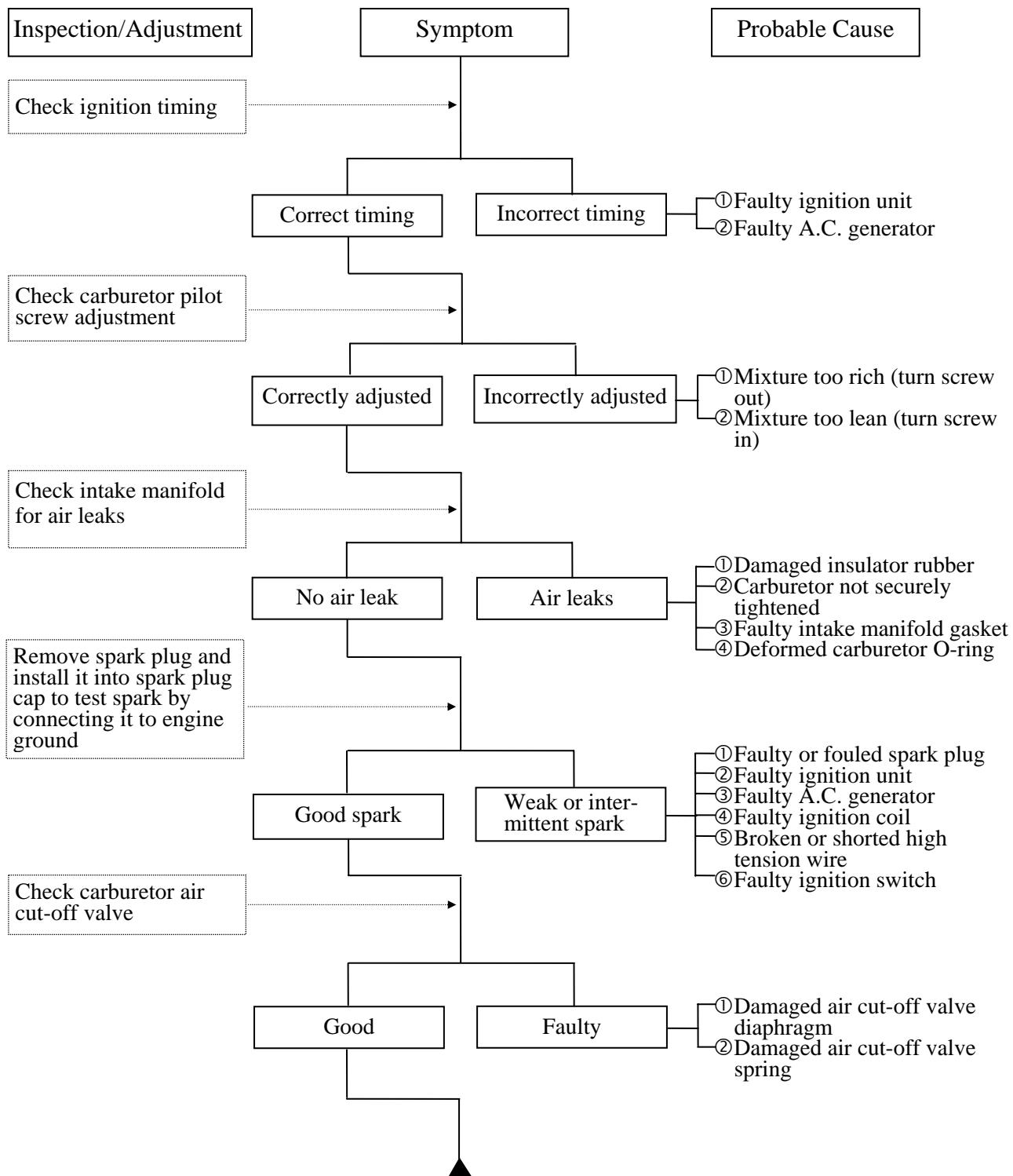
# 1. GENERAL INFORMATION

## ENGINE LACKS POWER



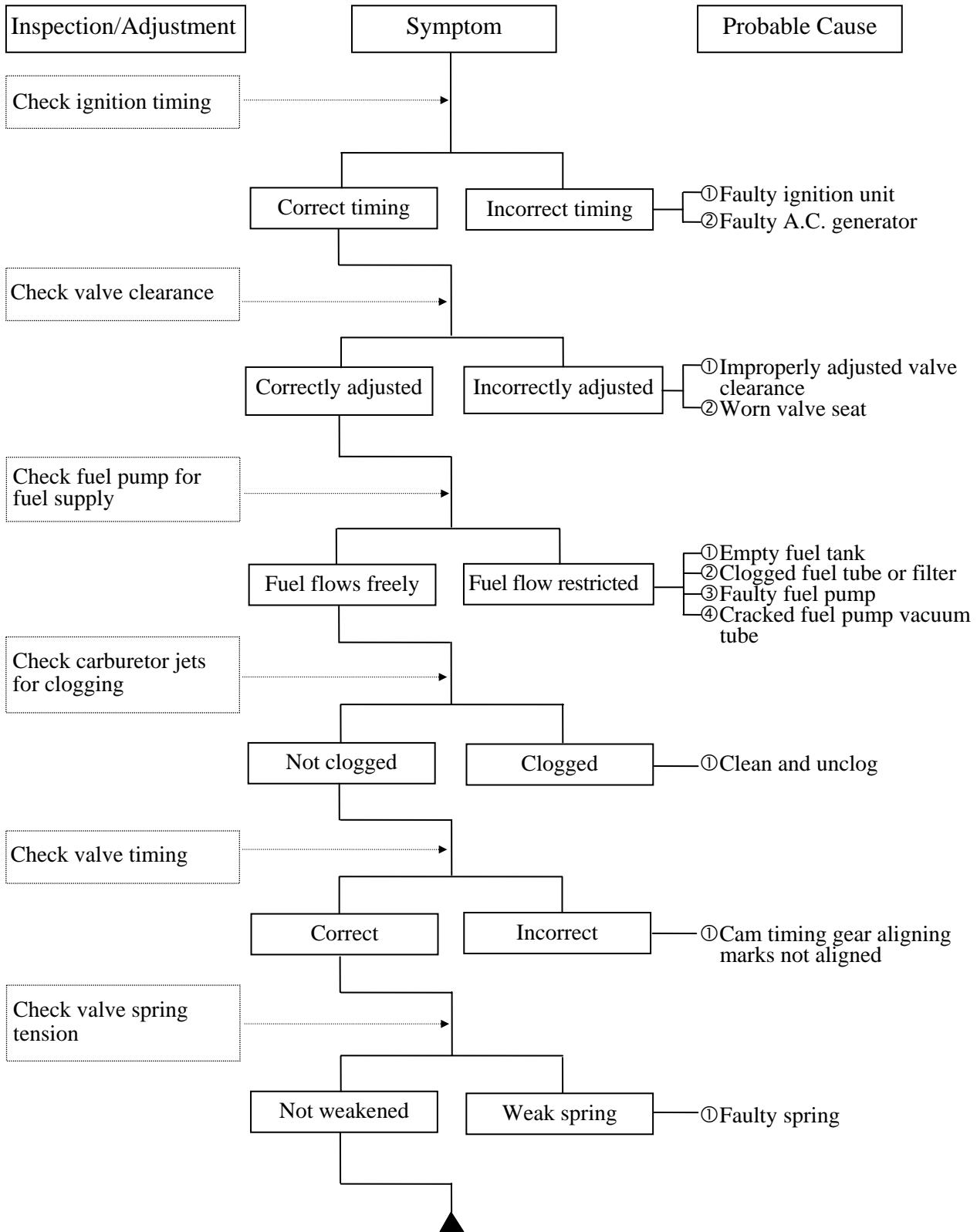
## 1. GENERAL INFORMATION

### POOR PERFORMANCE (ESPECIALLY AT IDLE AND LOW SPEEDS)



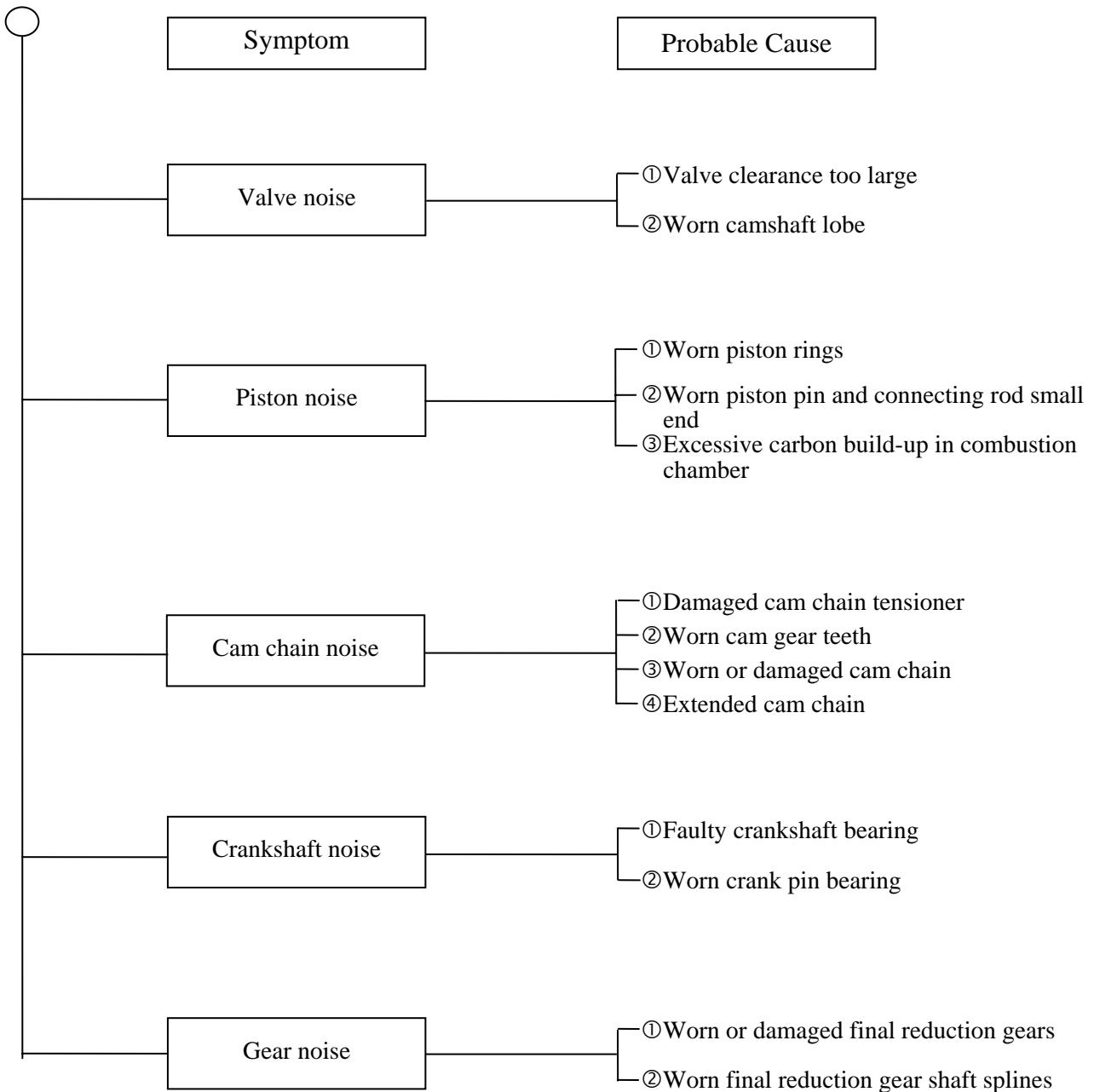
# 1. GENERAL INFORMATION

## POOR PERFORMANCE (AT HIGH SPEED)



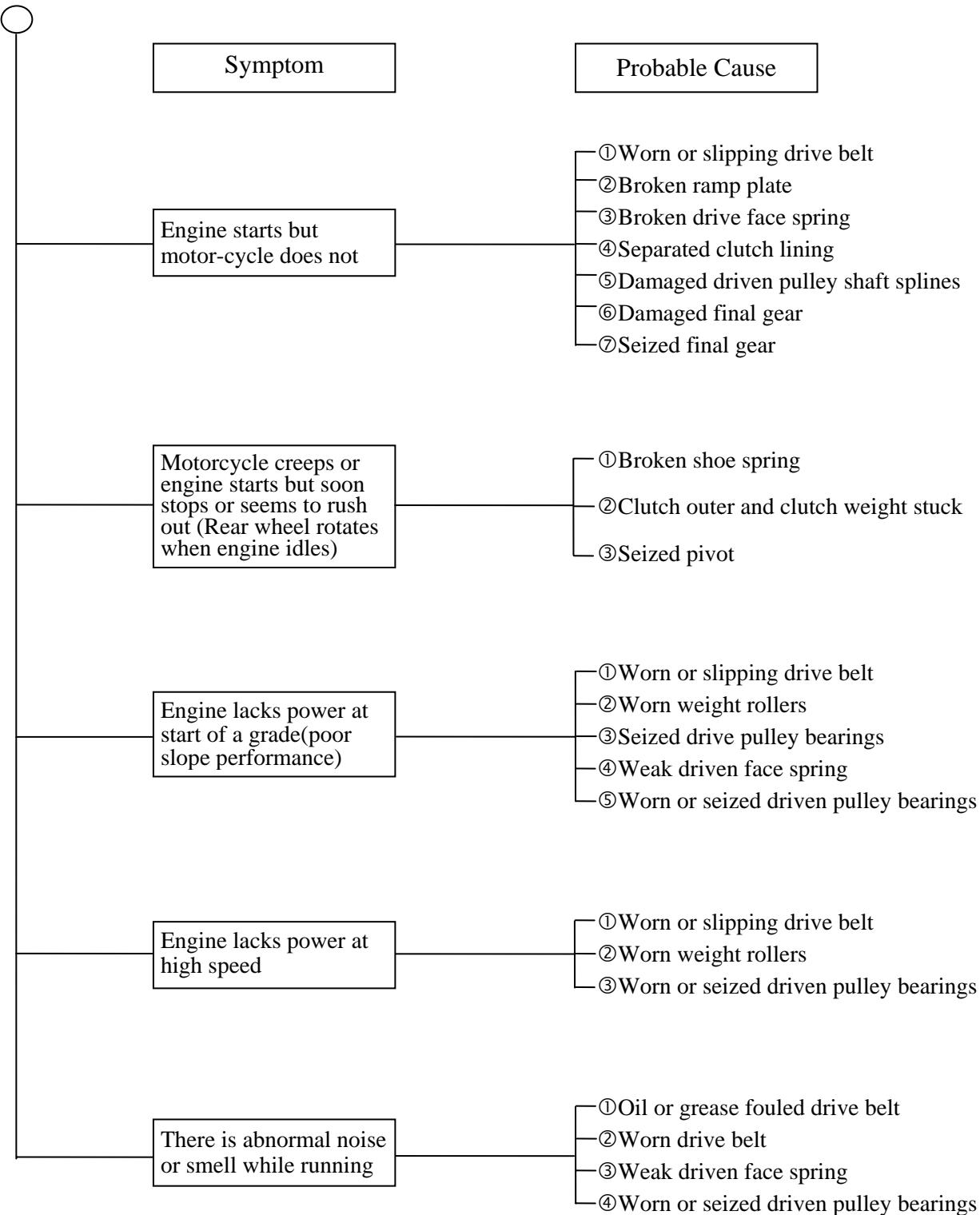
## 1. GENERAL INFORMATION

### ENGINE NOISE



## 1. GENERAL INFORMATION

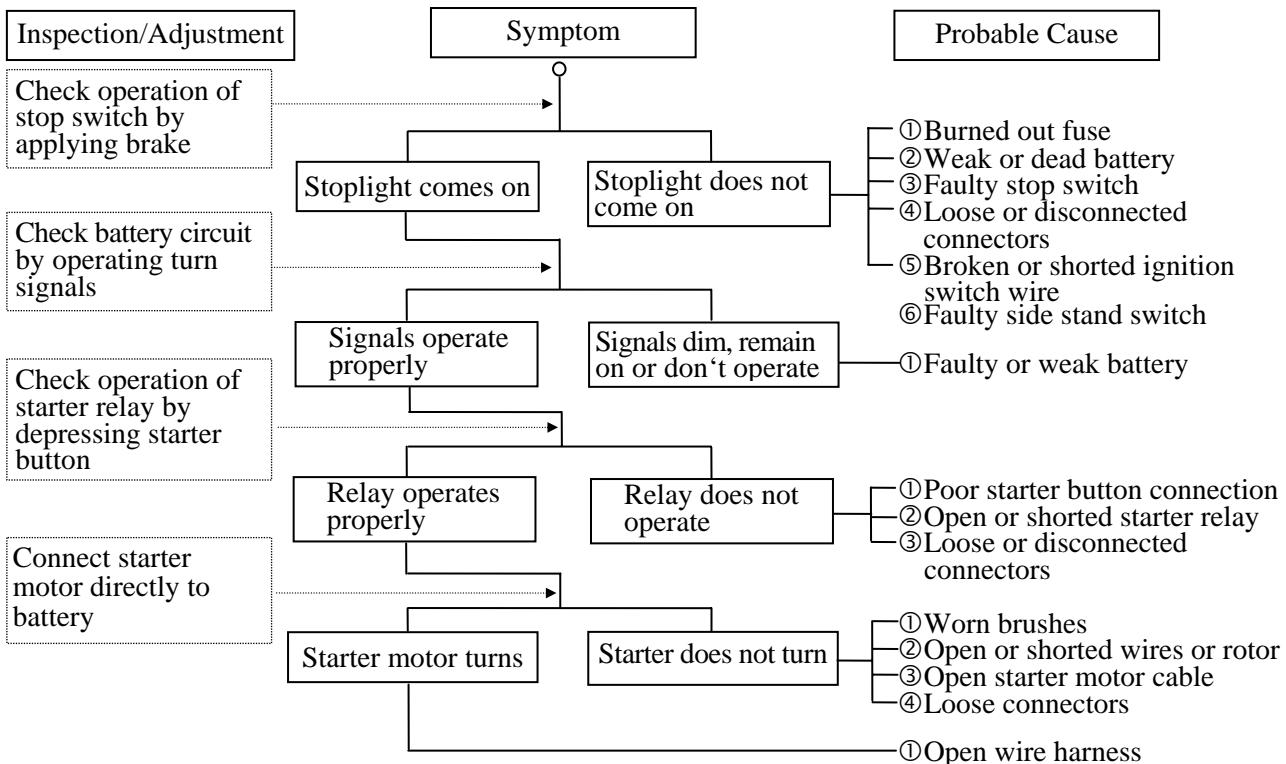
### CLUTCH, DRIVE AND DRIVEN PULLEYS



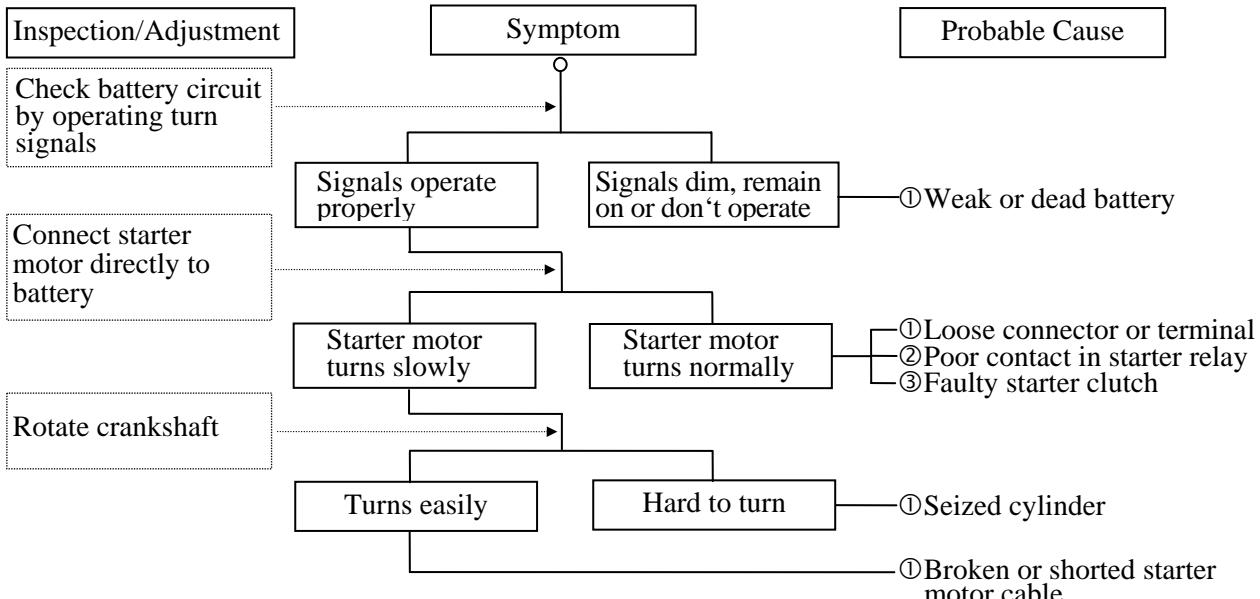
# 1. GENERAL INFORMATION

## STARTER MOTOR

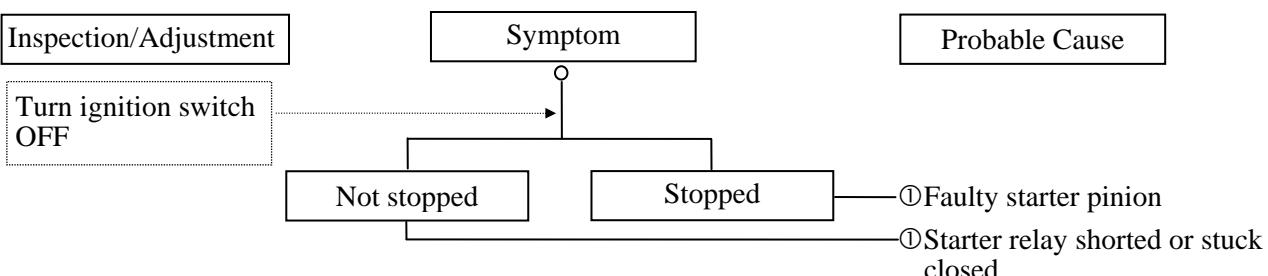
### 1. Starter motor won't turn



### 2. Starter motor turns slowly or idles

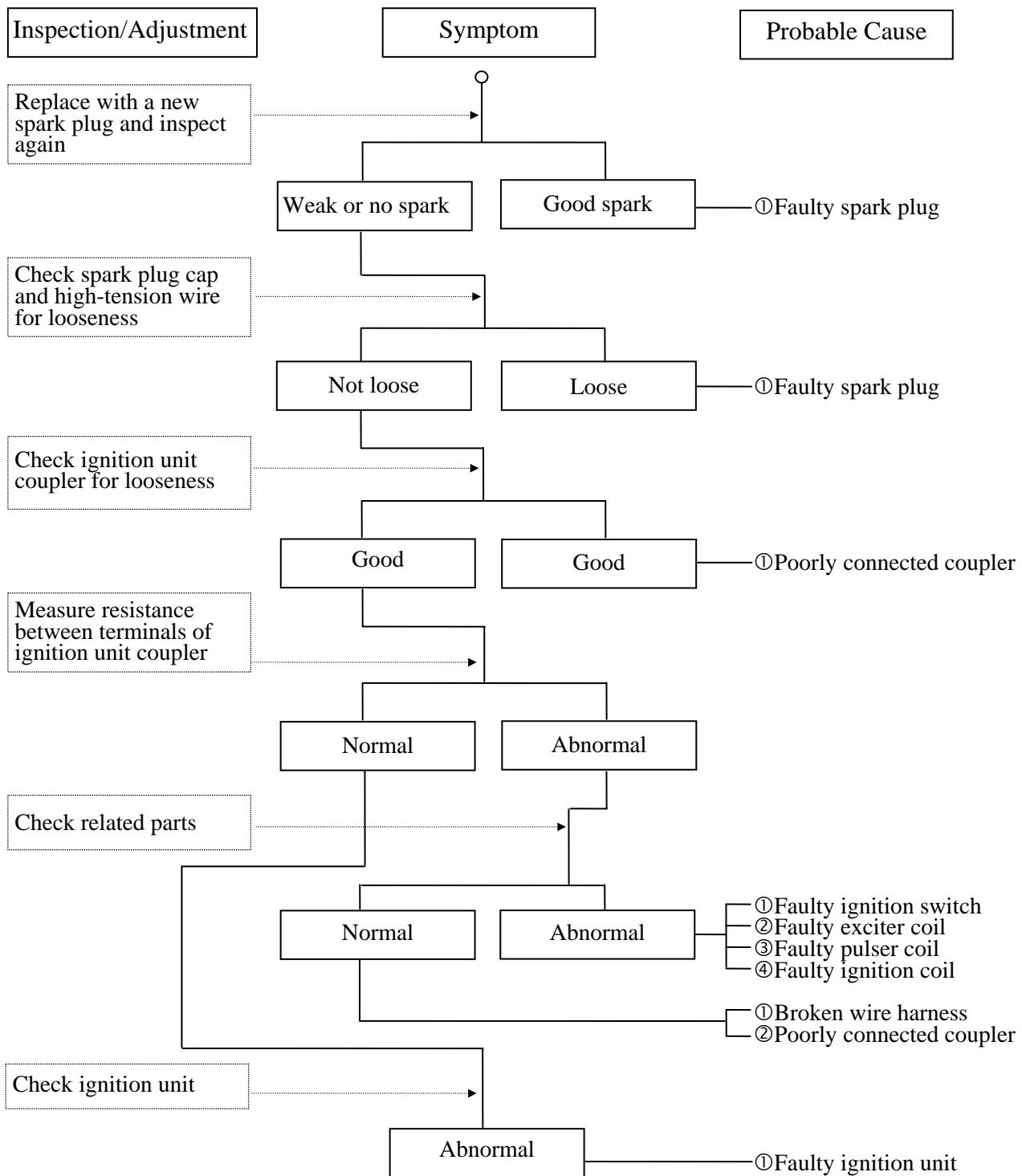


### 3. Starter motor does not stop turning



# 1. GENERAL INFORMATION

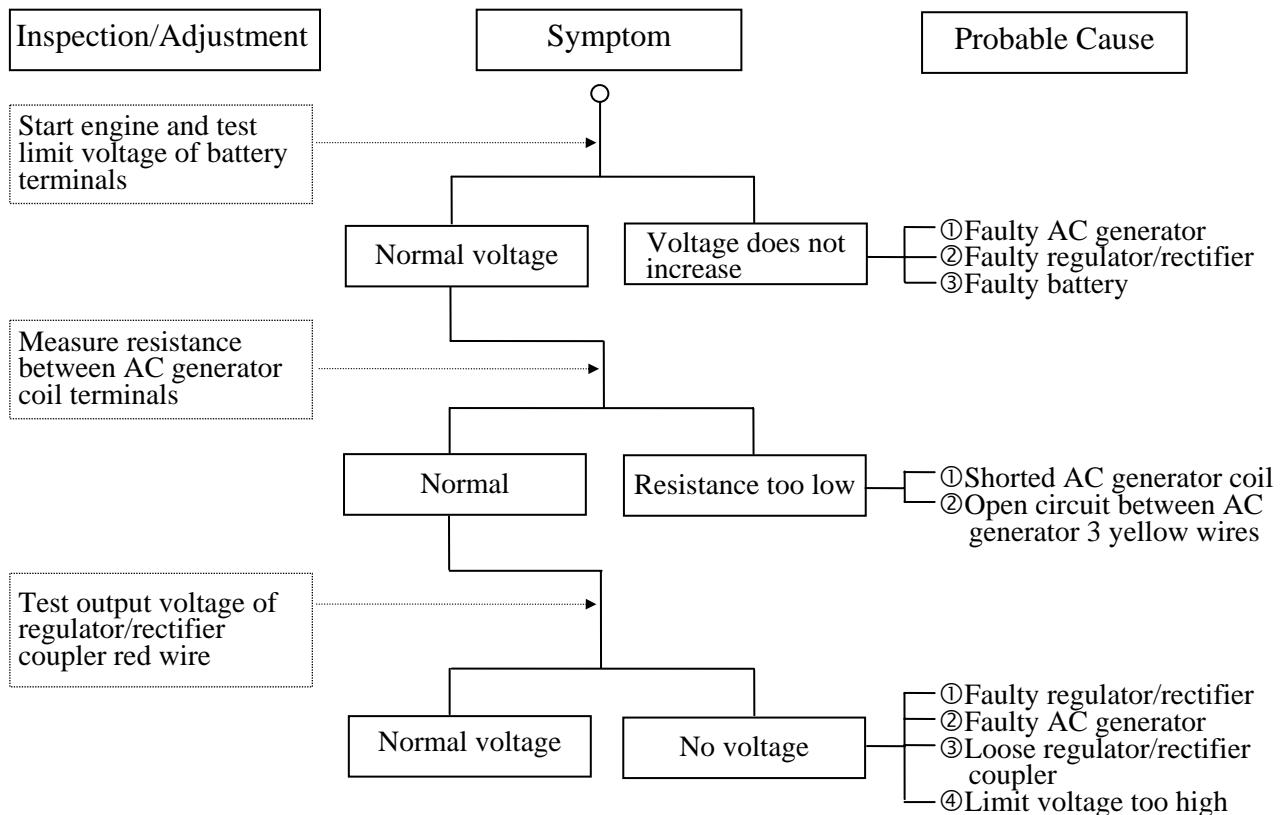
## NO SPARK AT SPARK PLUG



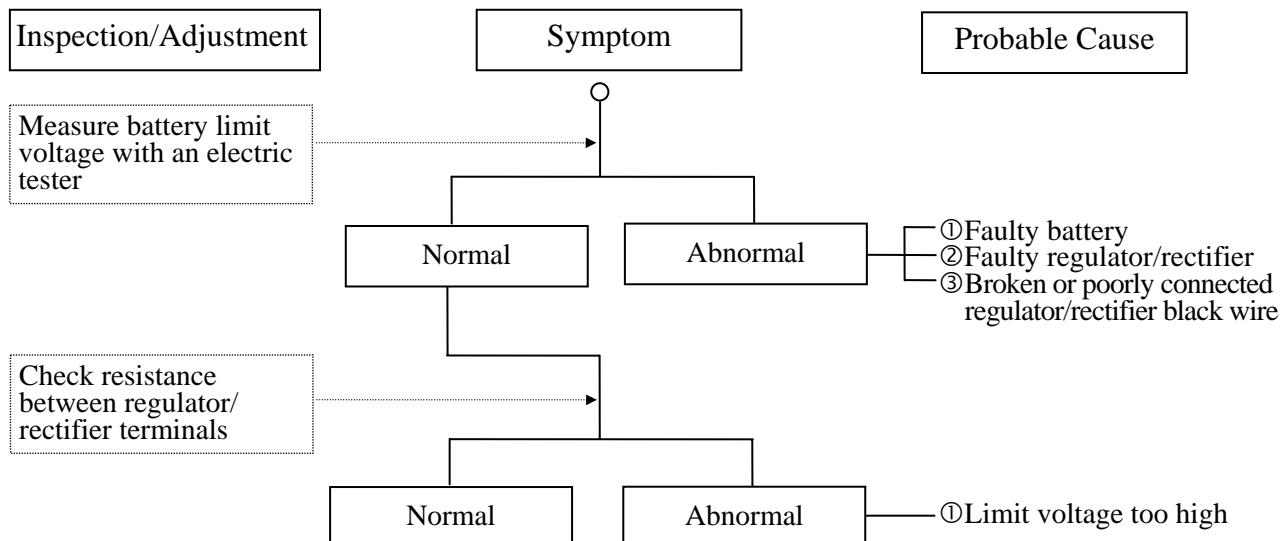
# 1. GENERAL INFORMATION

## POOR CHARGING (BATTERY OVER DISCHARGING OR OVERCHARGING)

### Undercharging



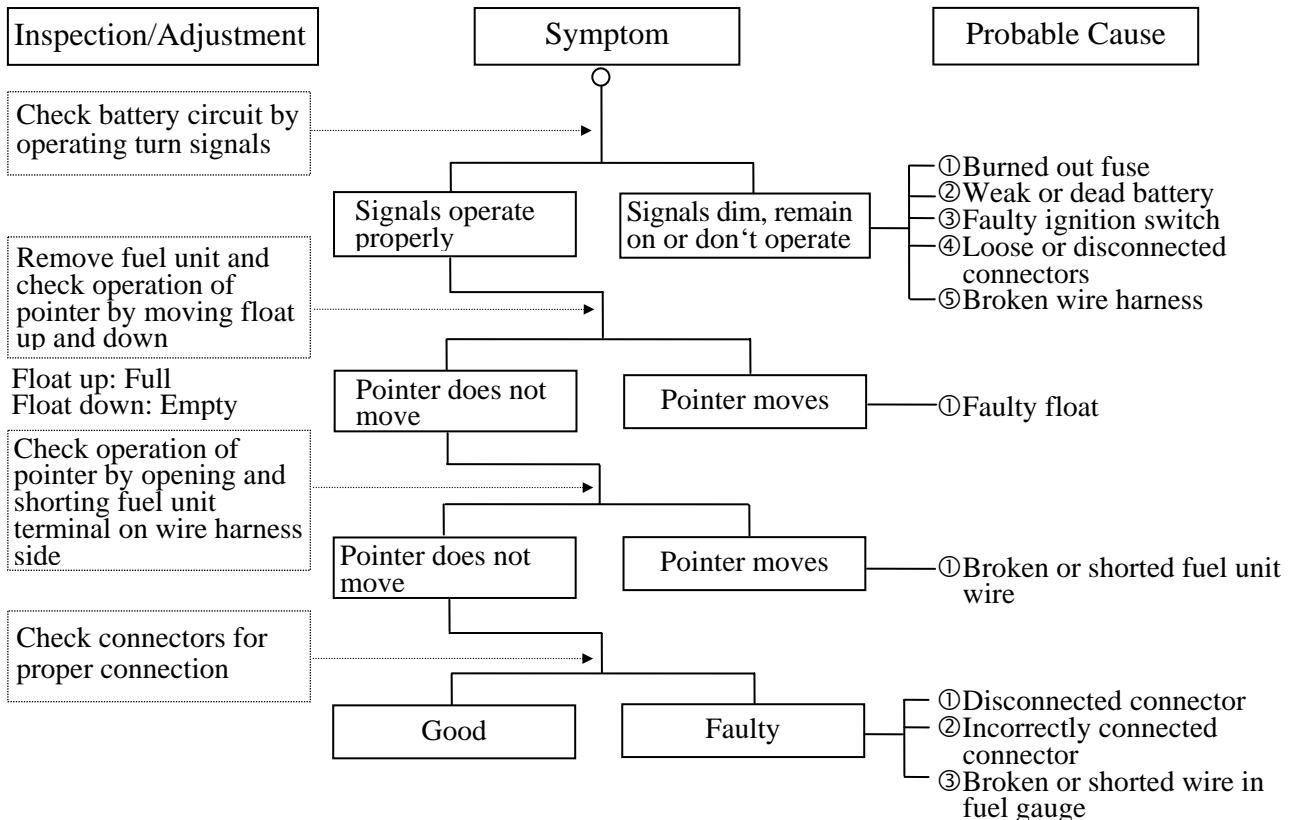
### Overcharging



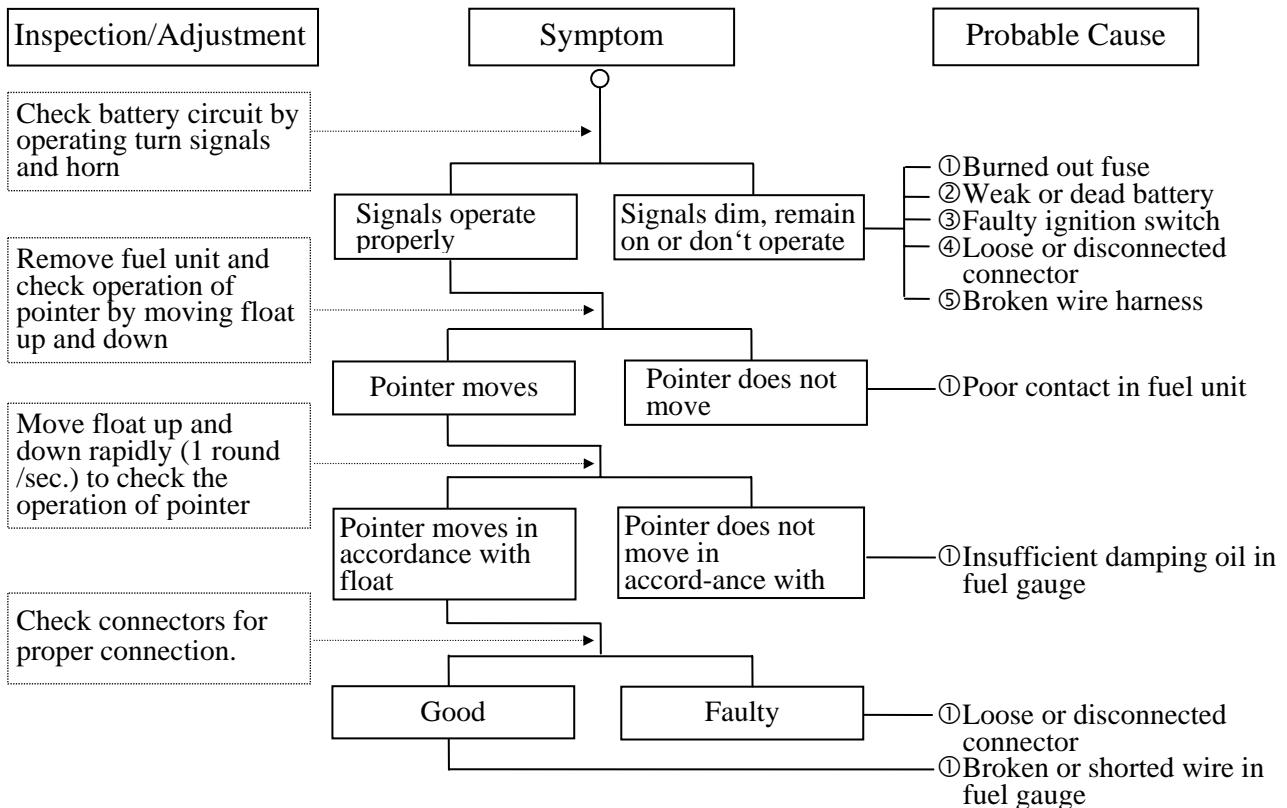
# 1. GENERAL INFORMATION

## FUEL GAUGE

### 1. Pointer does not register correctly (Ignition switch ON)

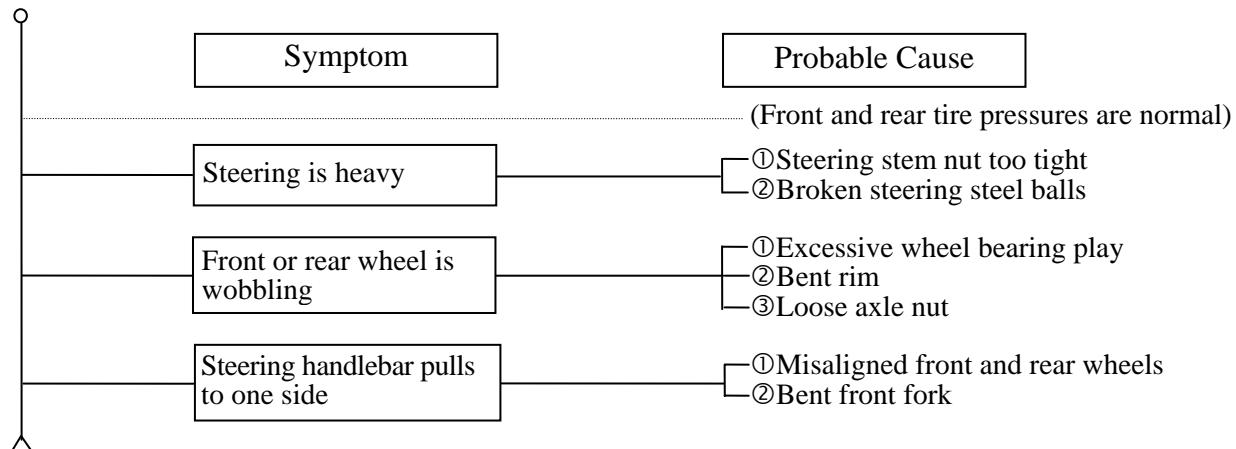


### 2. Pointer fluctuates or swings (Ignition switch ON)

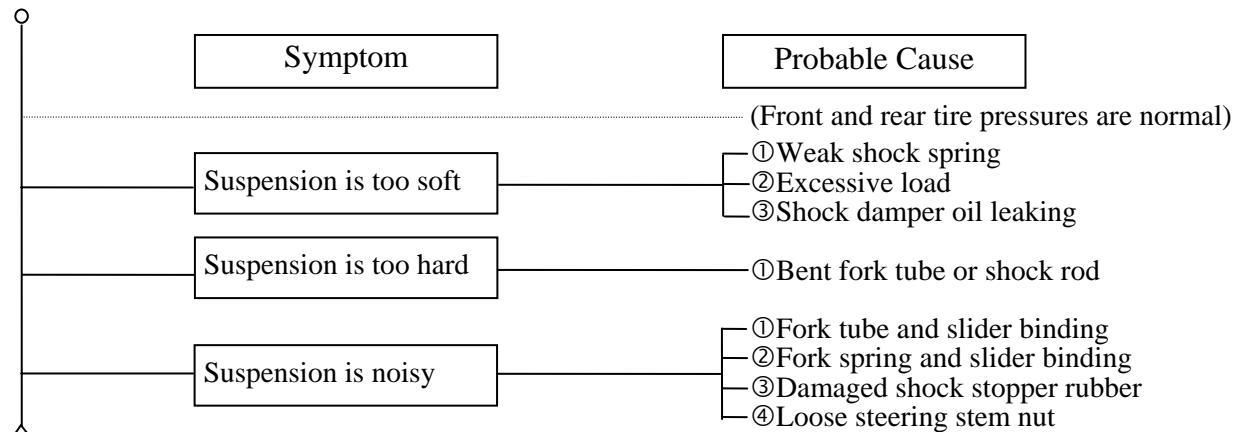


## 1. GENERAL INFORMATION

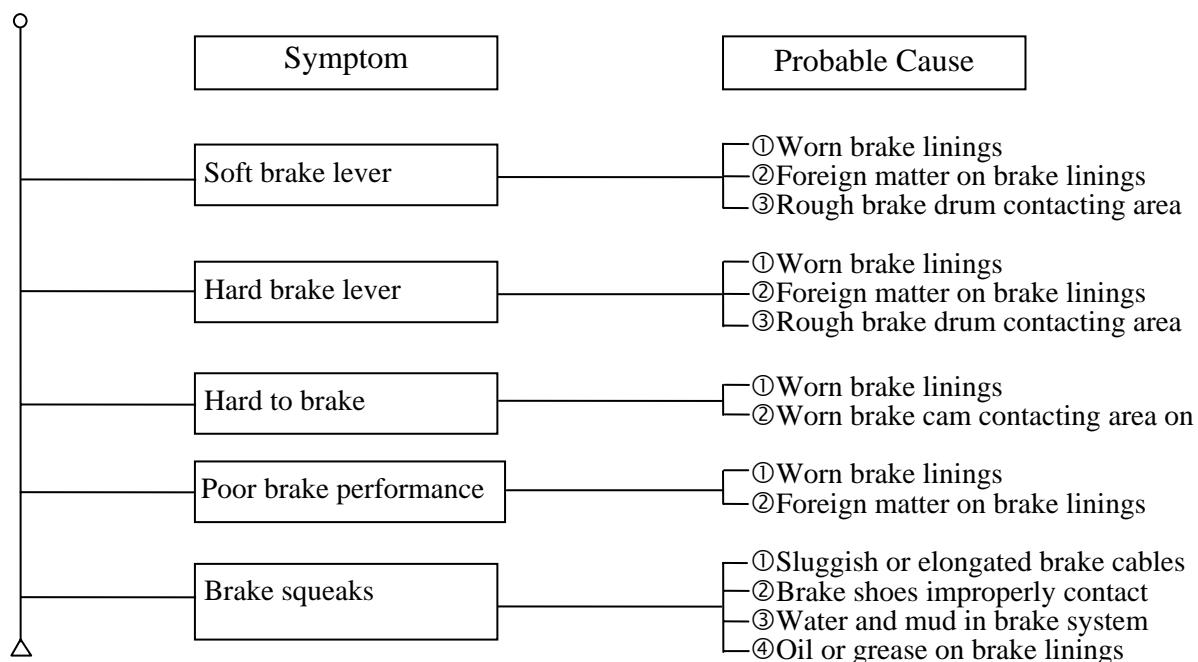
### STEERING HANDLEBAR DOES NOT TRACK STRAIGHT



### POOR SUSPENSION PERFORMANCE



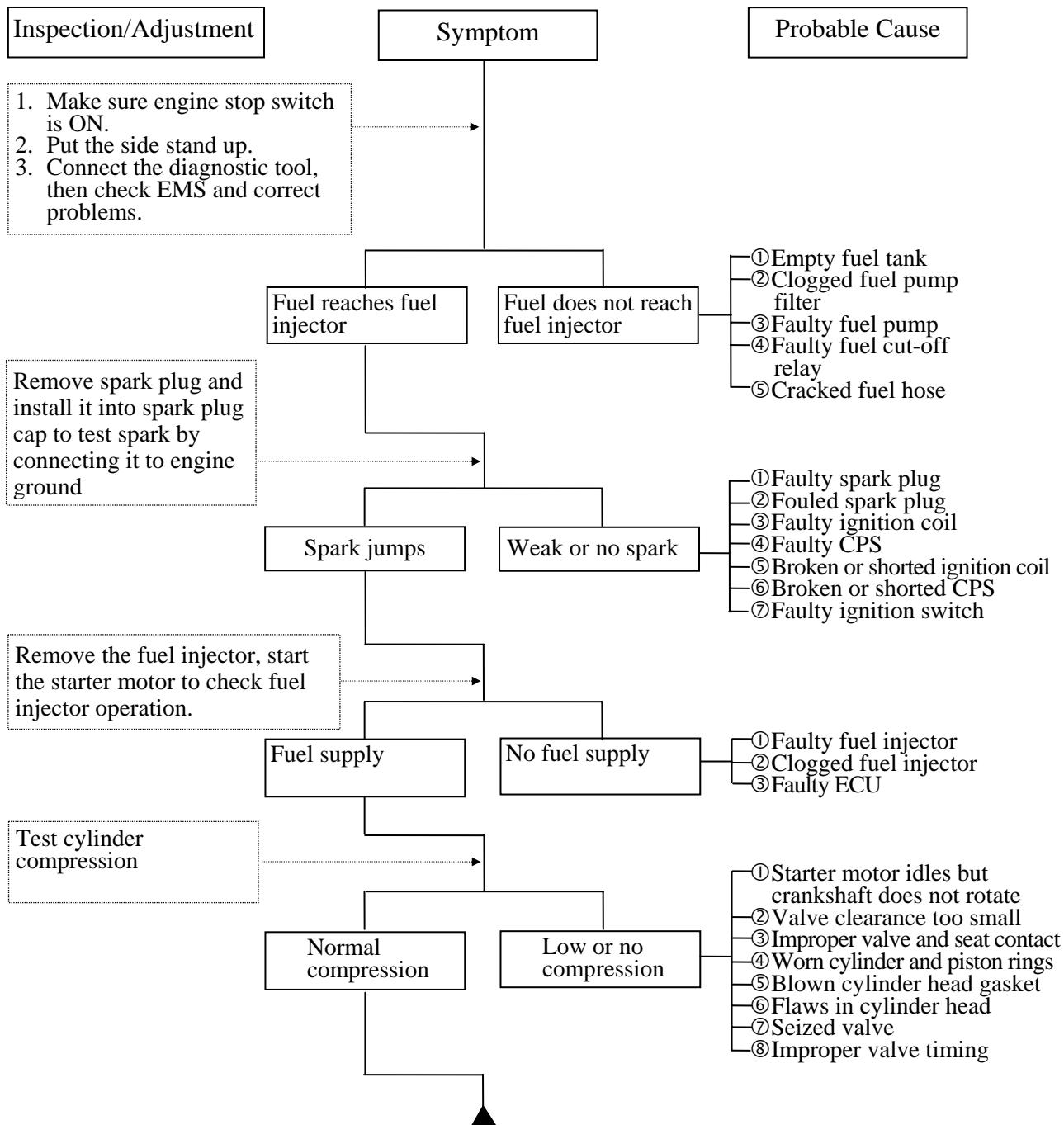
### POOR BRAKE PERFORMANCE



# 1. GENERAL INFORMATION

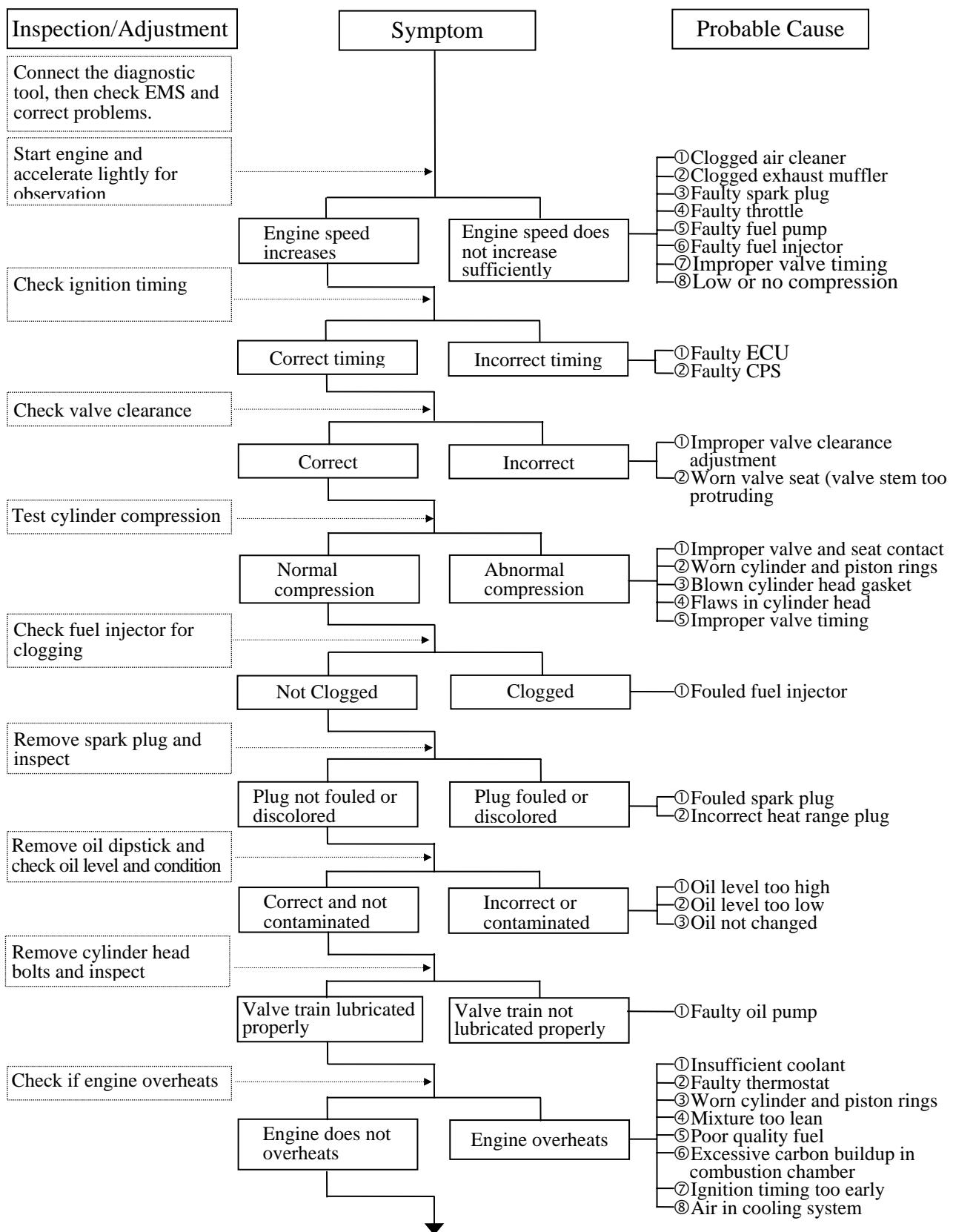
## TROUBLESHOOTING (XCITING 250 AFI)

### ENGINE WILL NOT START OR IS HARD TO START

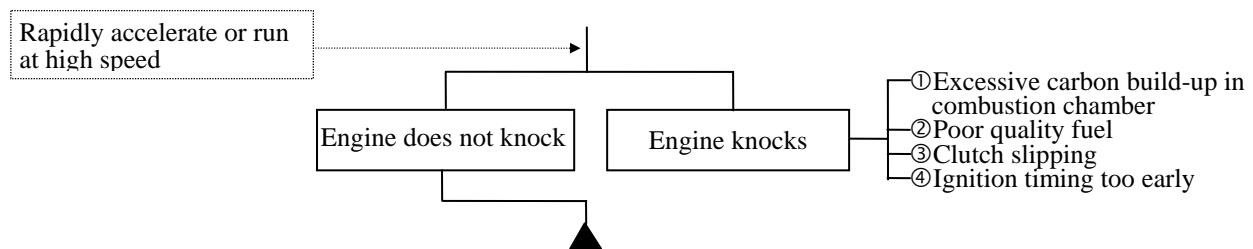


# 1. GENERAL INFORMATION

## ENGINE LACKS POWER

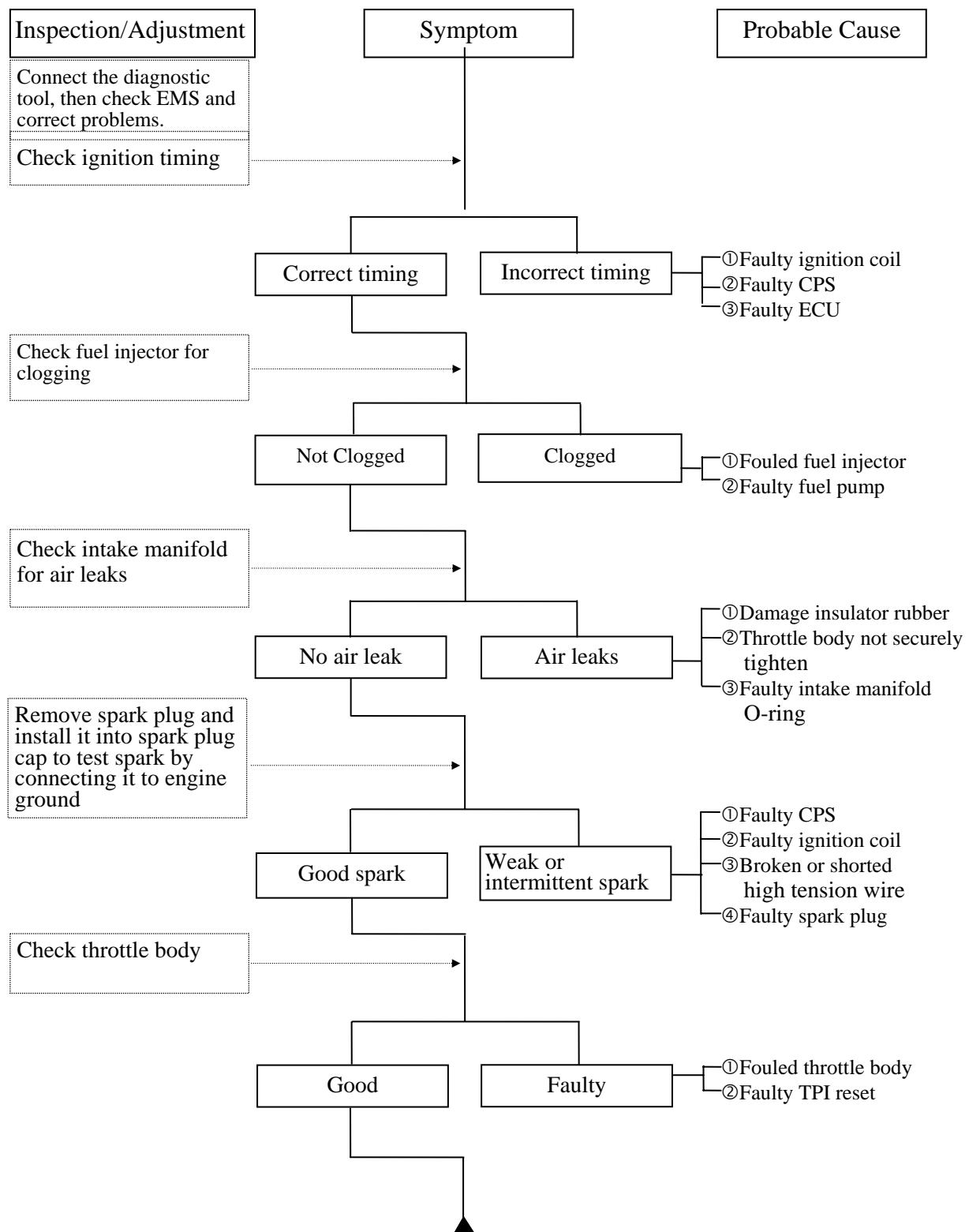


## 1. GENERAL INFORMATION



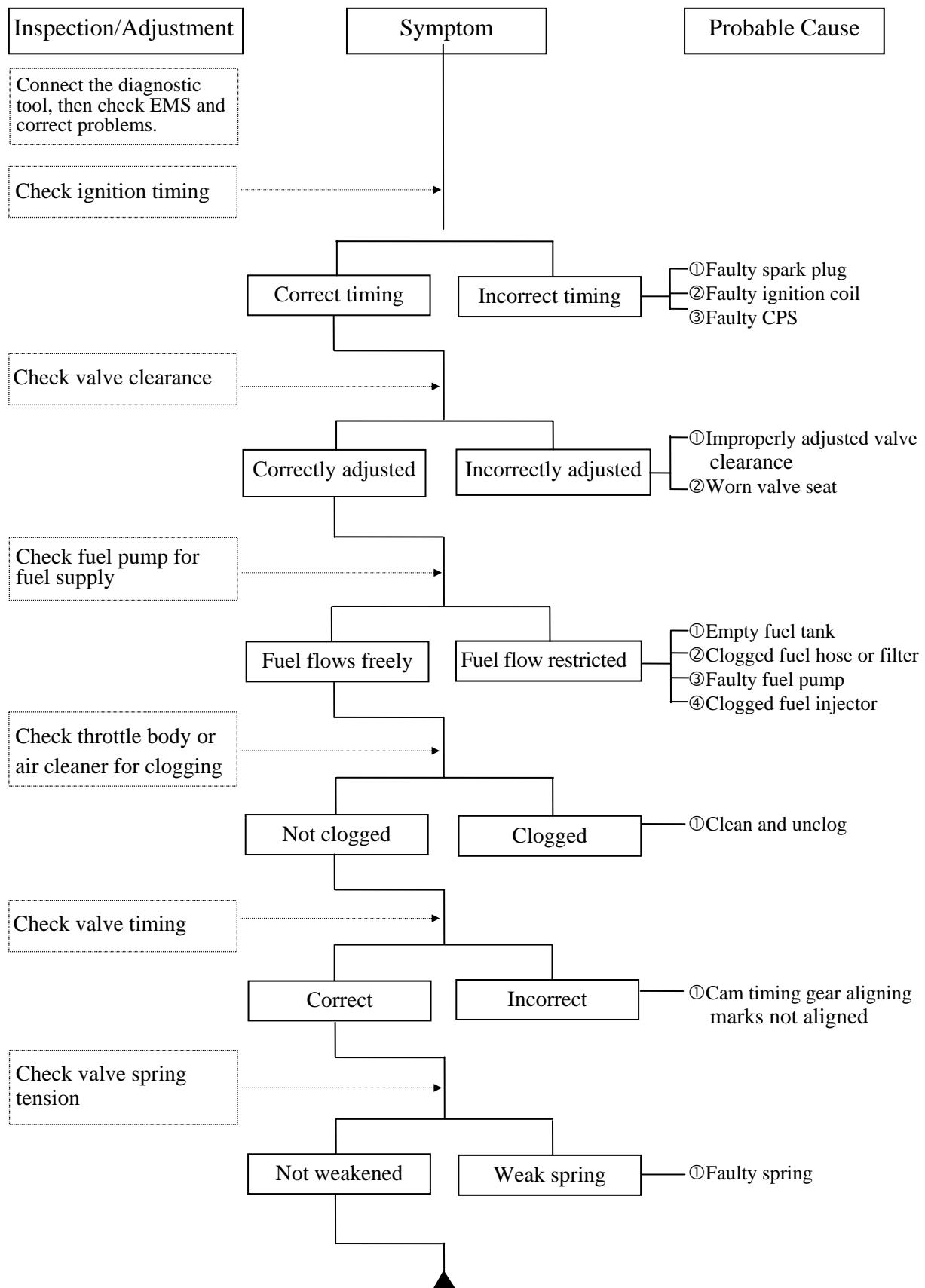
# 1. GENERAL INFORMATION

## POOR PERFORMANCE (ESPECIALLY AT IDLE AND LOW SPEEDS)



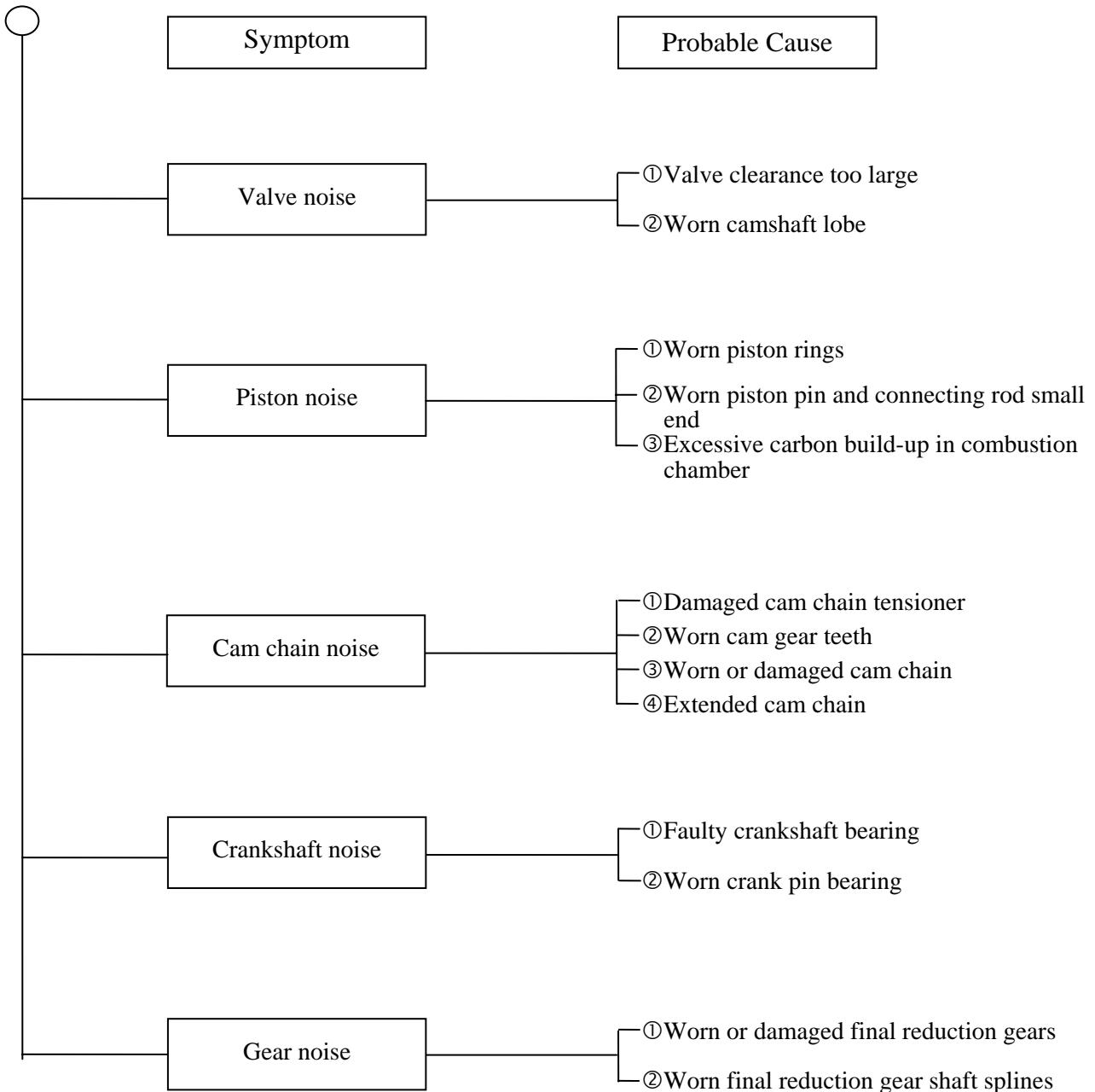
# 1. GENERAL INFORMATION

## POOR PERFORMANCE (AT HIGH SPEED)



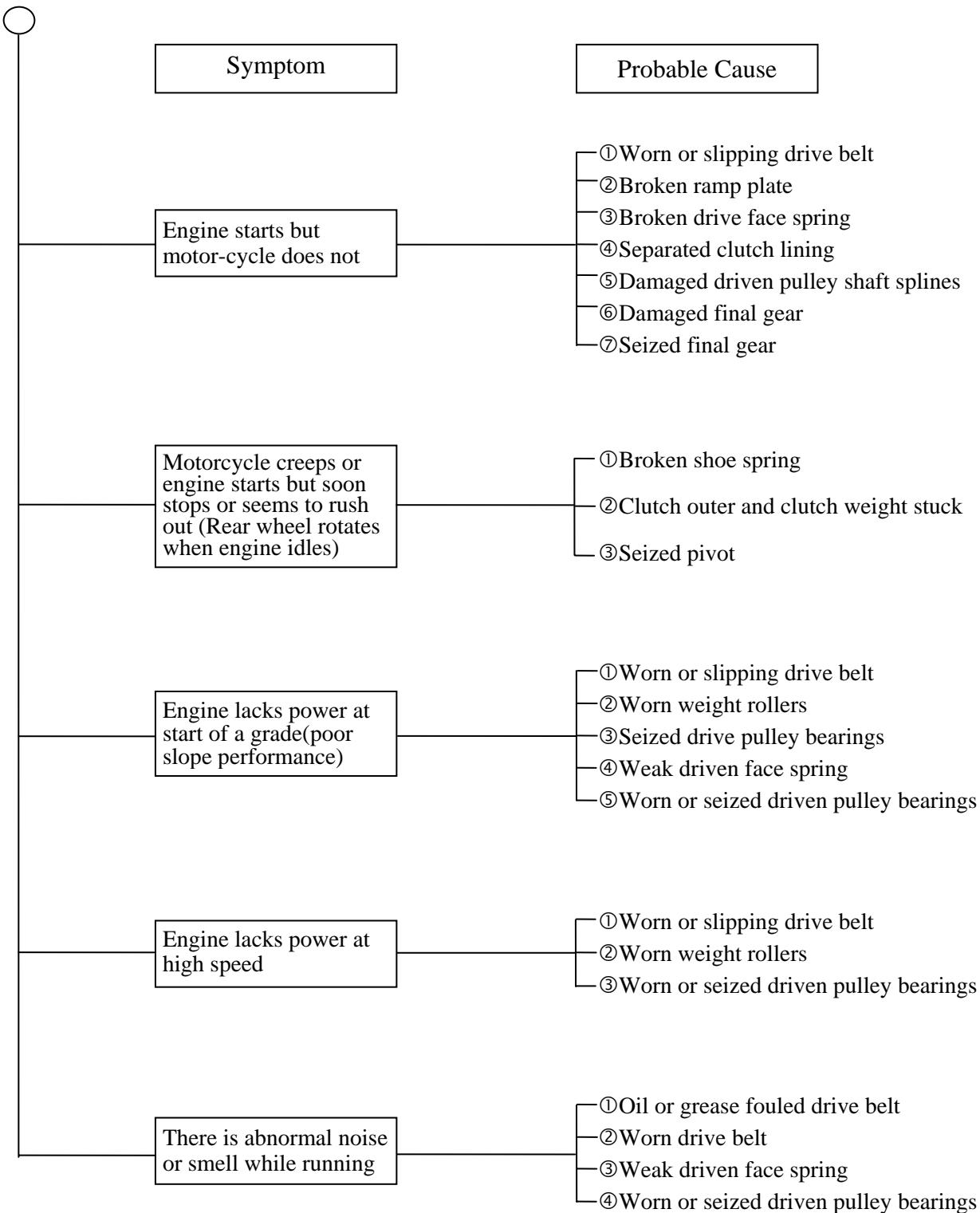
# 1. GENERAL INFORMATION

## ENGINE NOISE



## 1. GENERAL INFORMATION

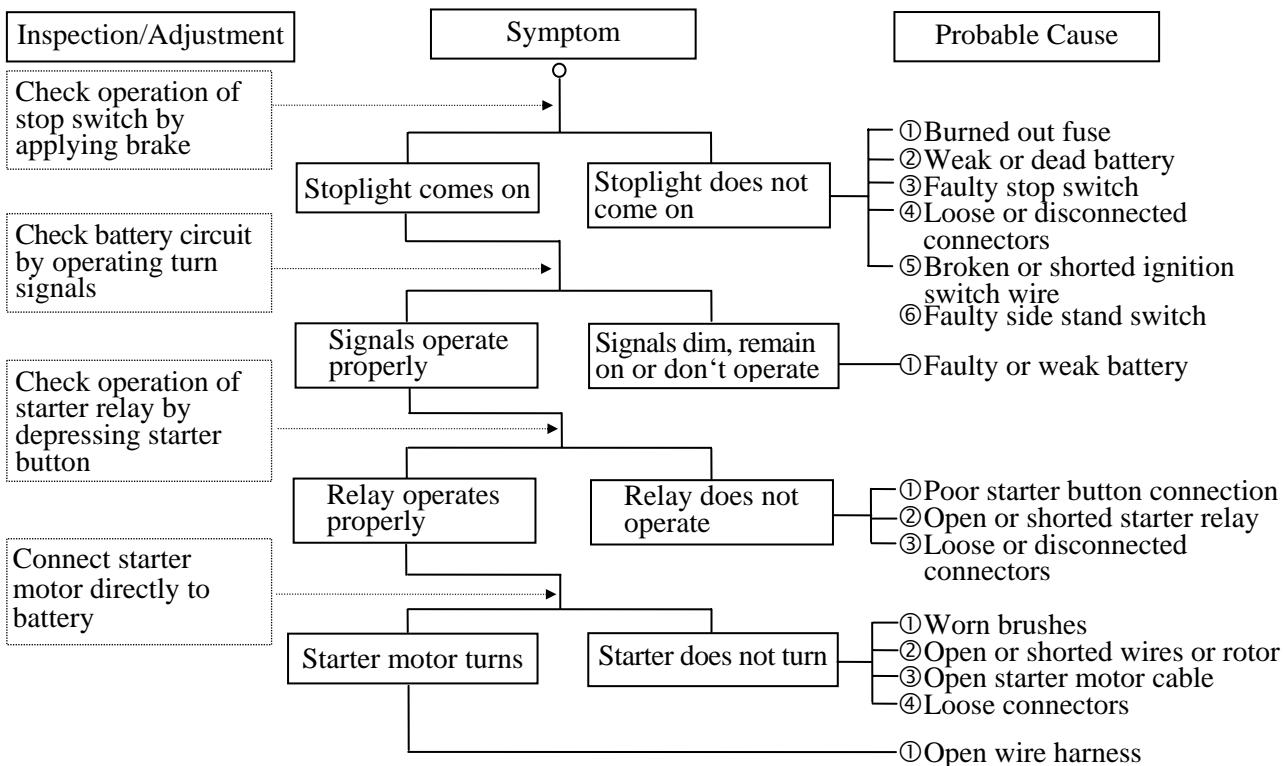
### CLUTCH, DRIVE AND DRIVEN PULLEYS



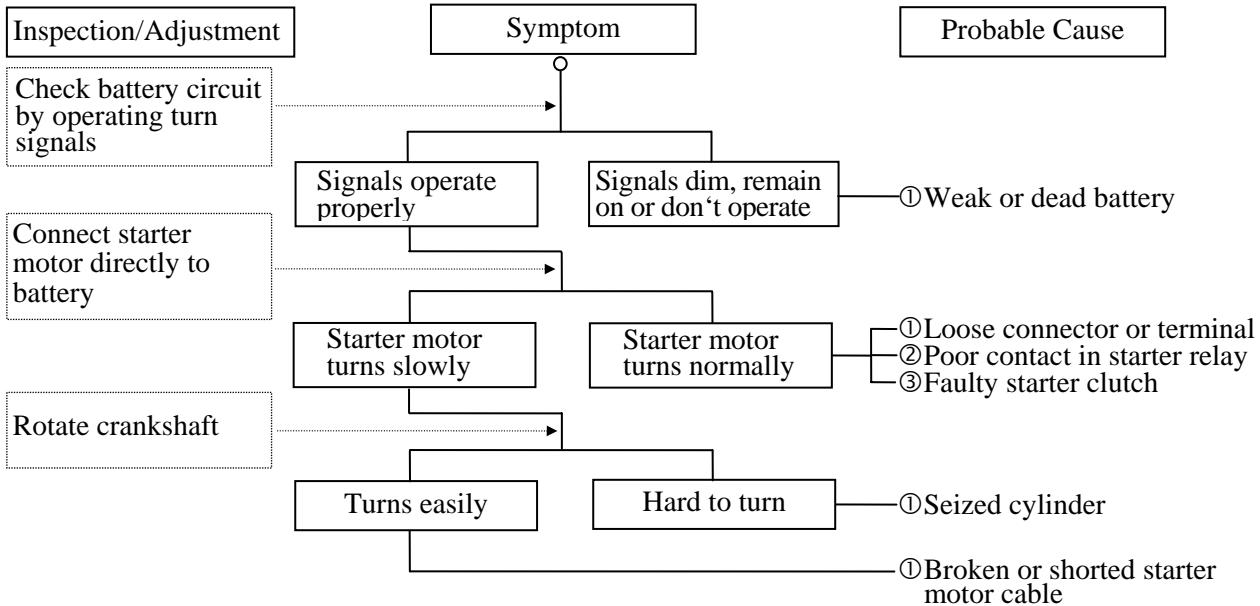
# 1. GENERAL INFORMATION

## STARTER MOTOR

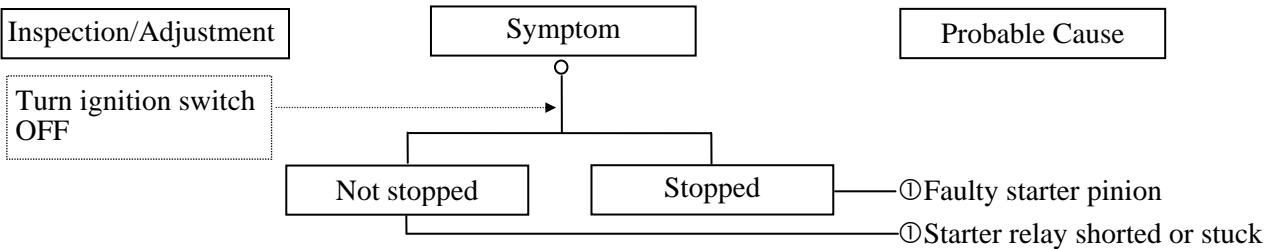
### 1. Starter motor won't turn



### 2. Starter motor turns slowly or idles



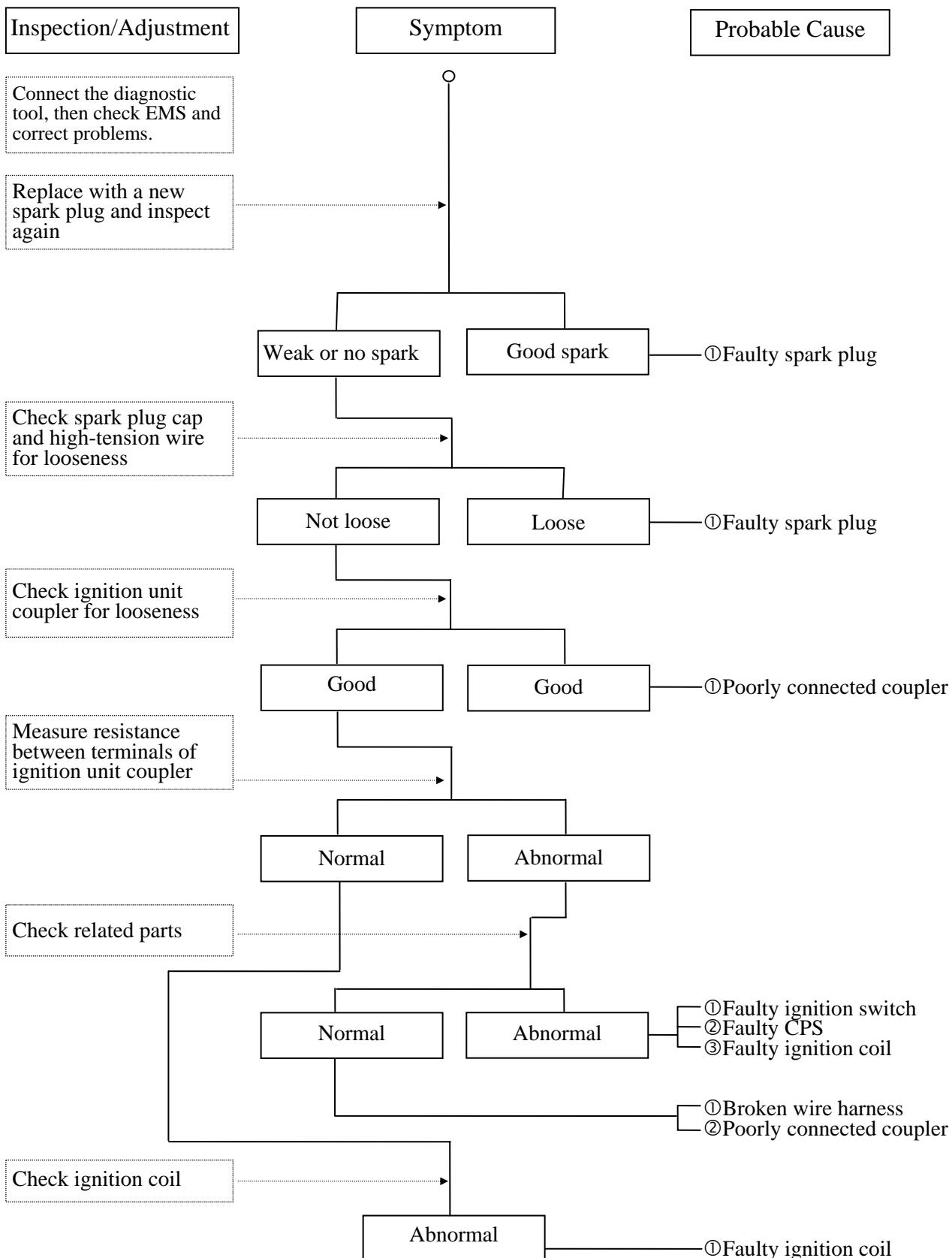
### 3. Starter motor does not stop turning



# 1. GENERAL INFORMATION

closed

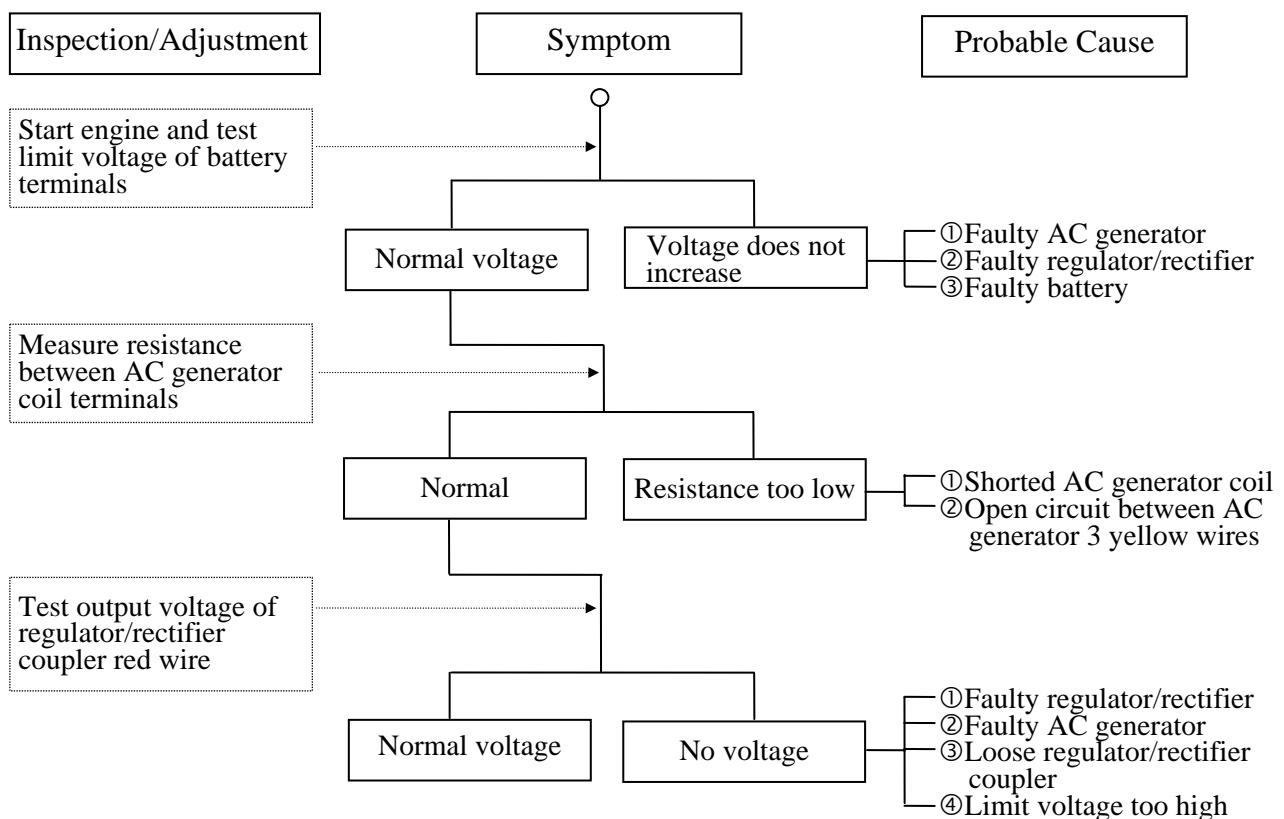
## NO SPARK AT SPARK PLUG



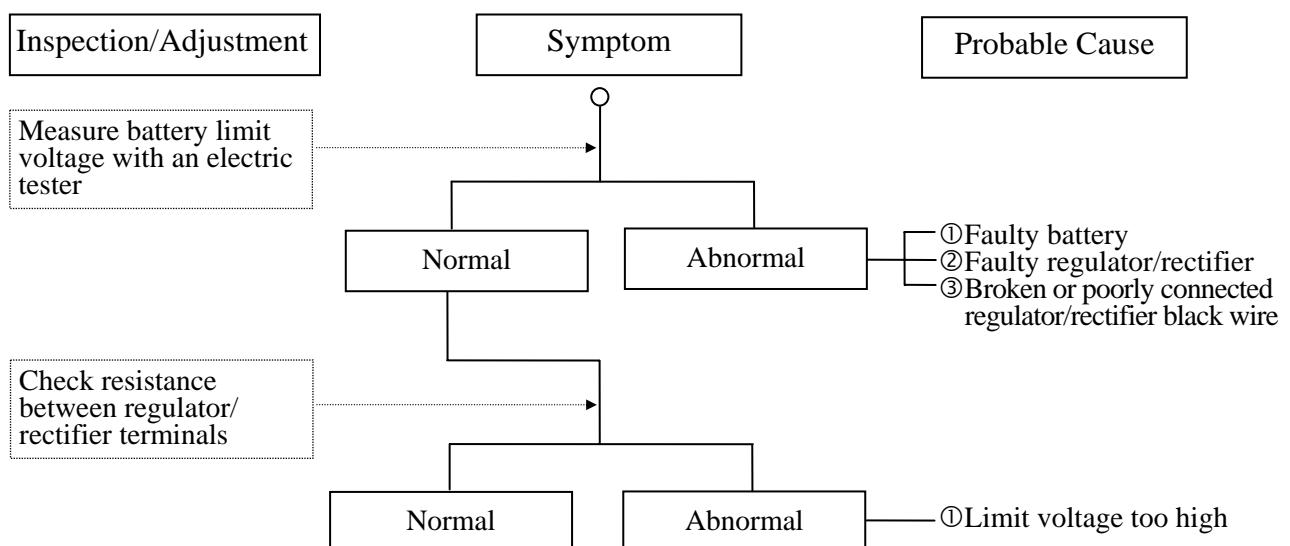
# 1. GENERAL INFORMATION

## POOR CHARGING (BATTERY OVER DISCHARGING OR OVERCHARGING)

### Undercharging



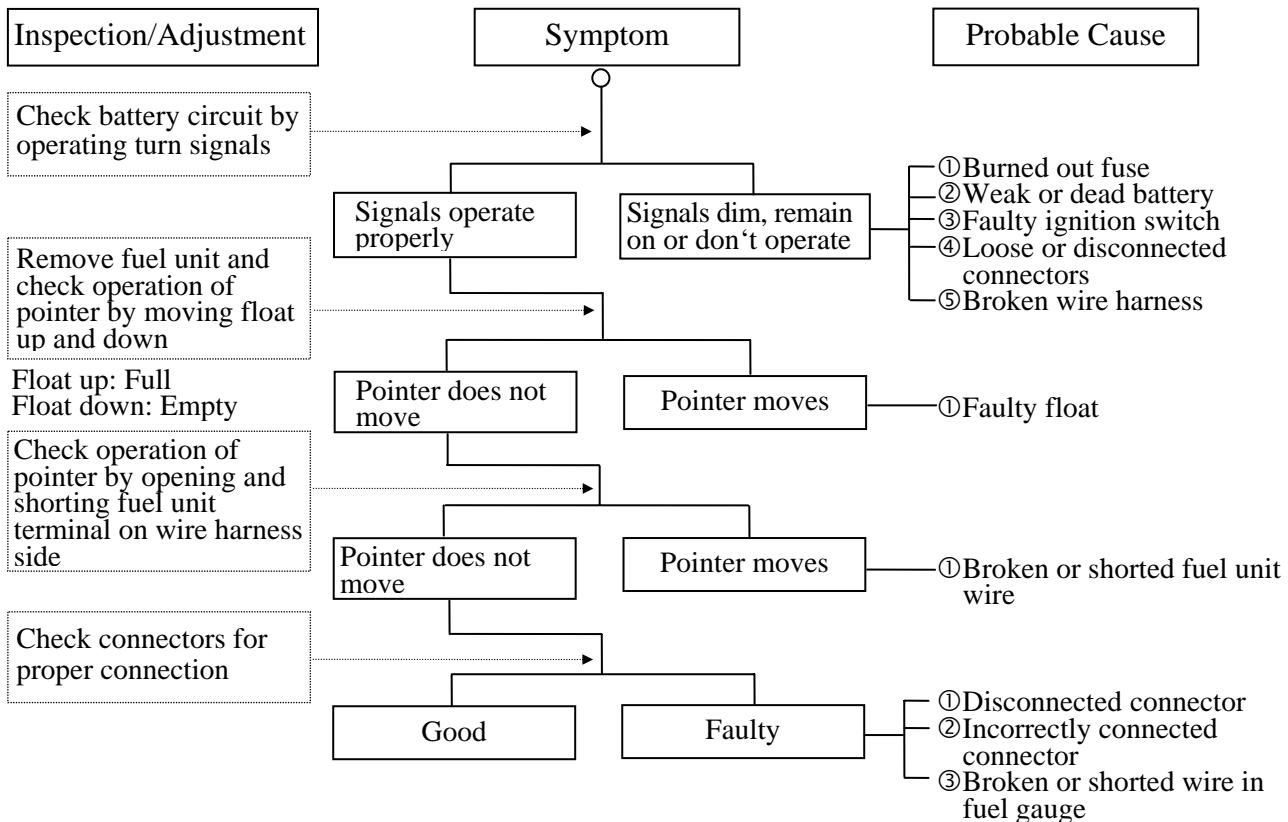
### Overcharging



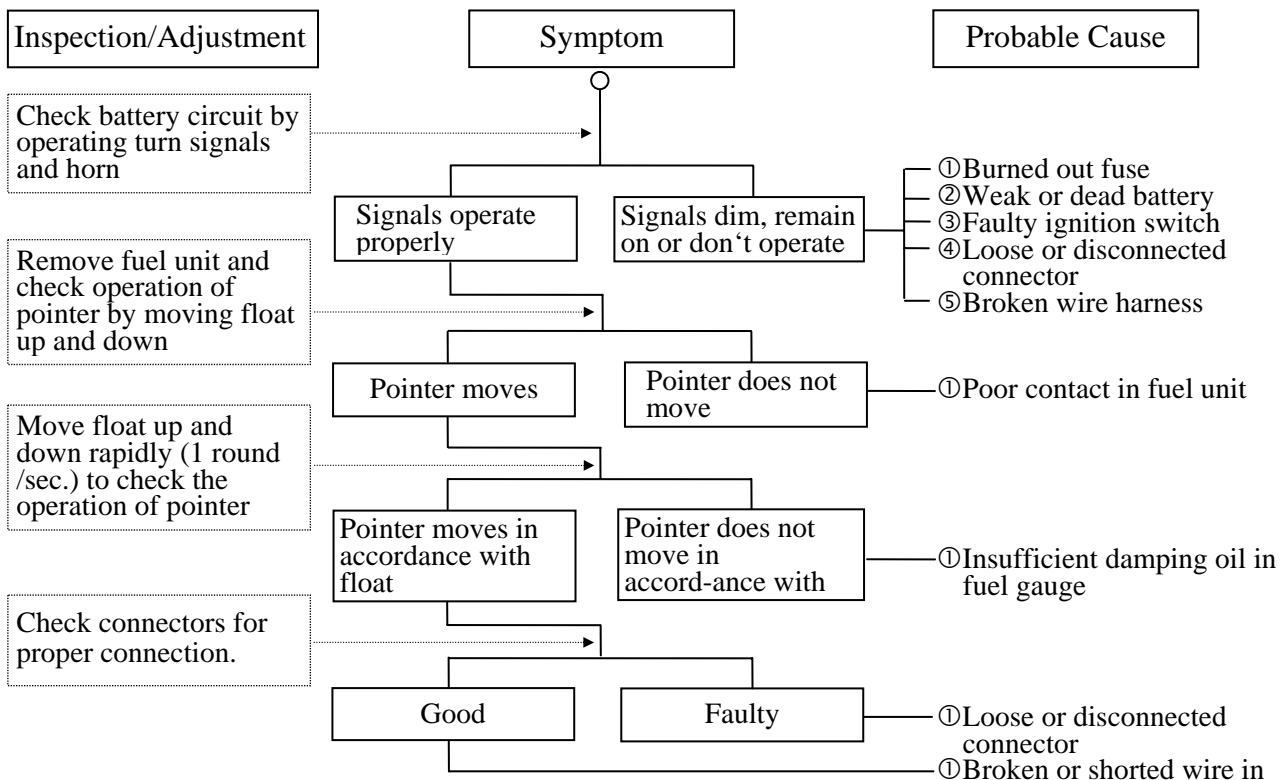
# 1. GENERAL INFORMATION

## FUEL GAUGE

### 1. Pointer does not register correctly (Ignition switch ON)



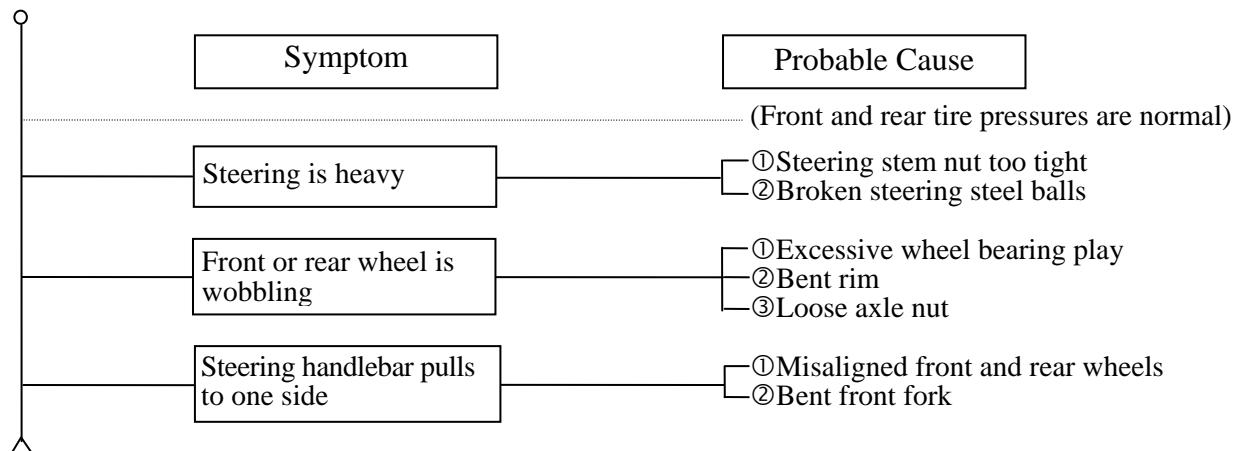
### 2. Pointer fluctuates or swings (Ignition switch ON)



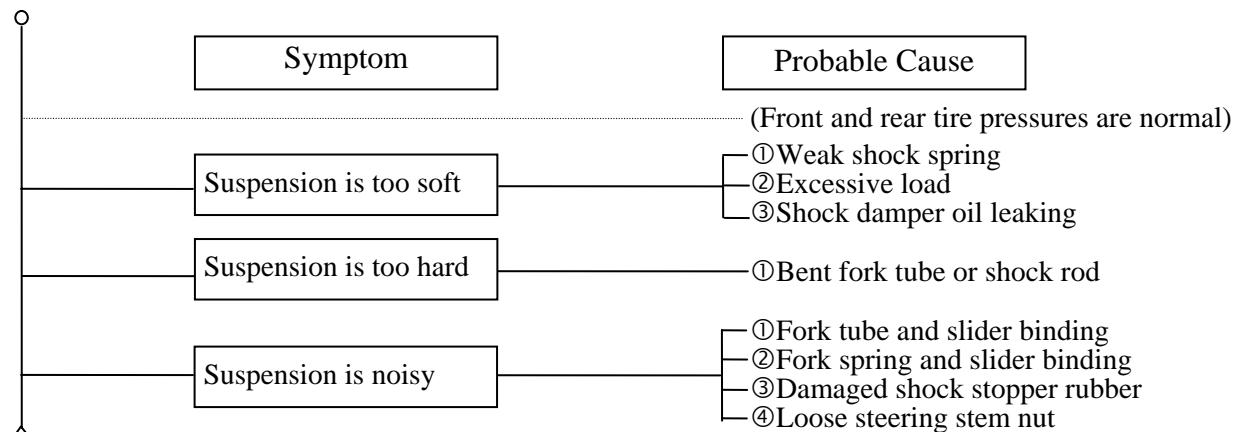
# 1. GENERAL INFORMATION

fuel gauge

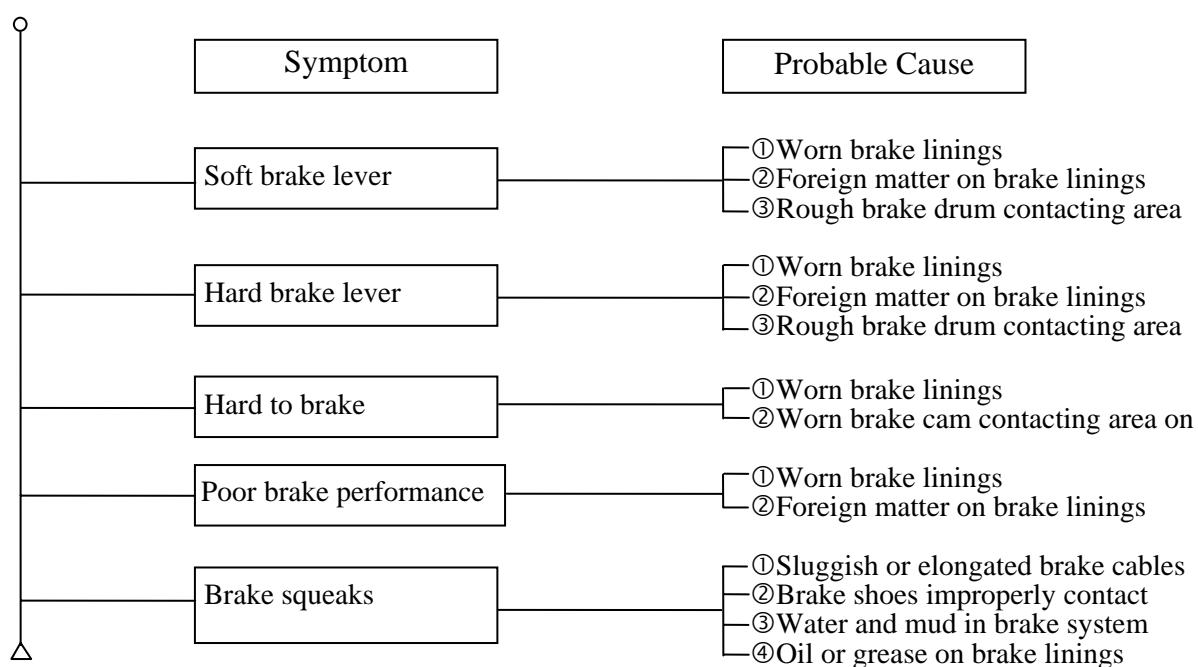
## STEERING HANDLEBAR DOES NOT TRACK STRAIGHT



## POOR SUSPENSION PERFORMANCE



## POOR BRAKE PERFORMANCE



## **1. GENERAL INFORMATION**

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**2. FRAME COVERS/  
EXHAUST MUFFLER**

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**2**

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**FRAME COVERS/EXHAUST MUFFLER**

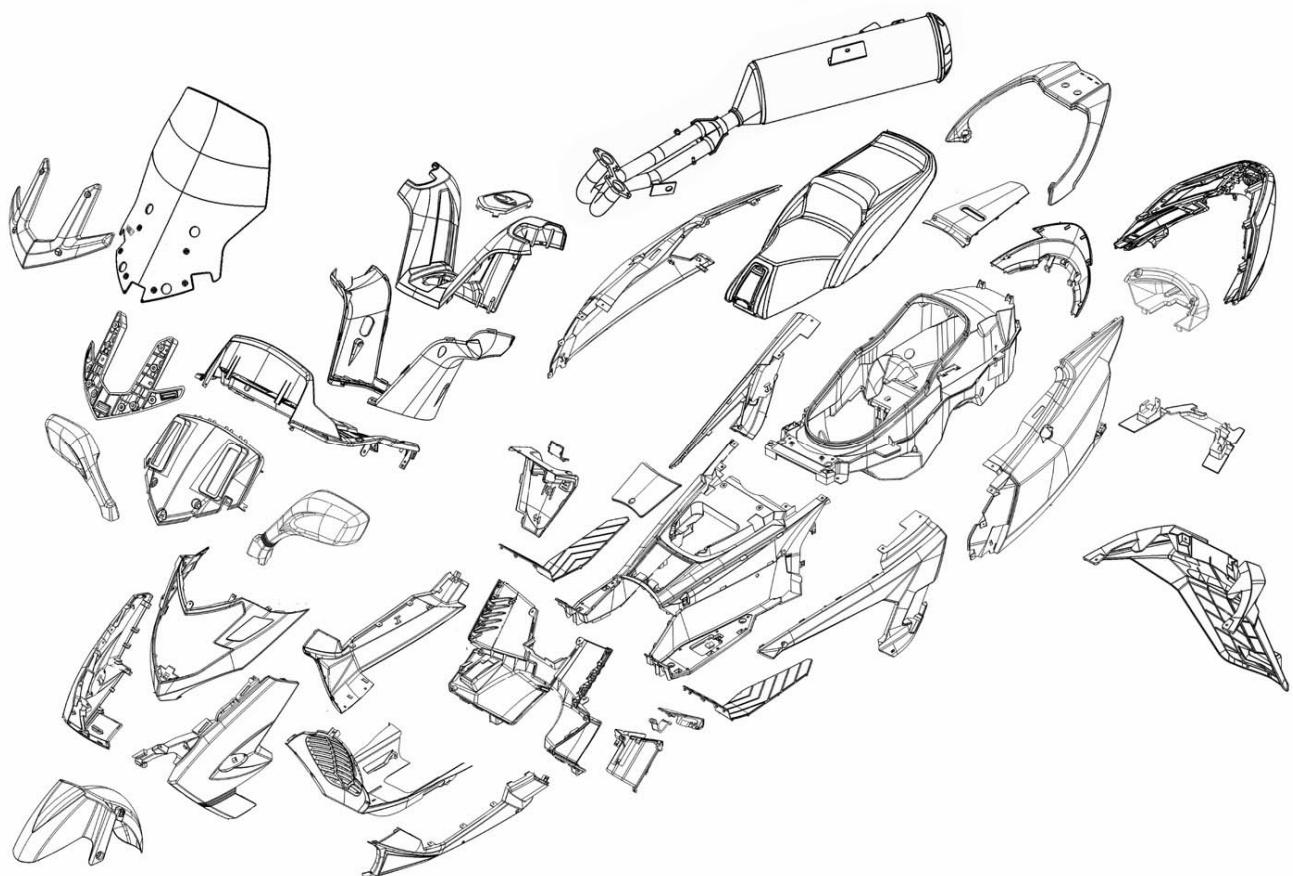
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SCHEMATIC DRAWING -----	2- 1
SERVICE INFORMATION-----	2- 2
TROUBLESHOOTING-----	2- 2
FRAME COVERS REMOVAL -----	2- 3
EXHAUST MUFFLER -----	2-17

## **2. FRAME COVERS/ EXHAUST MUFFLER**

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### **SCHEMATIC DRAWING**



## **2. FRAME COVERS/ EXHAUST MUFFLER**

---

### **SERVICE INFORMATION**

#### **GENERAL INSTRUCTIONS**

- When removing frame covers, use care not to pull them by force because the cover joint claws may be damaged.
- Make sure to route cables and harnesses according to the Cable & Harness Routing.

#### **TORQUE VALUES**

Muffler mount bolt	3.2~3.8 kg-m
Exhaust pipe joint nut	1.0~1.4 kg-m
Exhaust pipe band bolt	1.0~1.4 kg-m

### **TROUBLESHOOTING**

#### **Noisy exhaust muffler**

- Damaged exhaust muffler
- Exhaust muffler joint air leaks

#### **Lack of power**

- Caved exhaust muffler
- Clogged exhaust muffler
- Exhaust muffler air leaks

## **2. FRAME COVERS/ EXHAUST MUFFLER**

### **FRAME COVERS REMOVAL**

#### **SEAT**

##### **REMOVAL**

Unlock the seat with the ignition key.  
Open the seat.

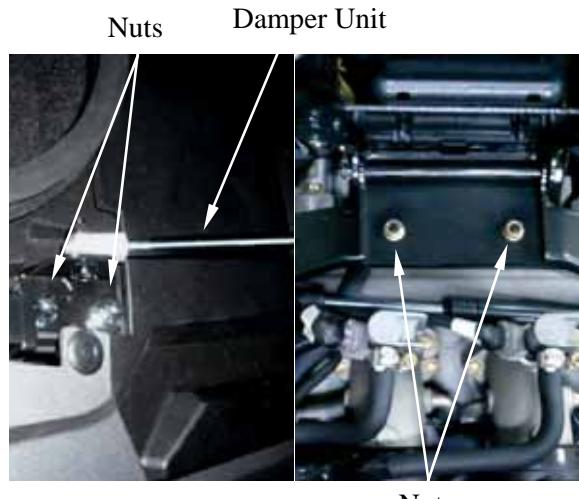
Remove the two nuts and seat damper unit.

Remove the two nuts and the seat.

#### **INSTALLATION**

Installation is in the reverse order of the removal.

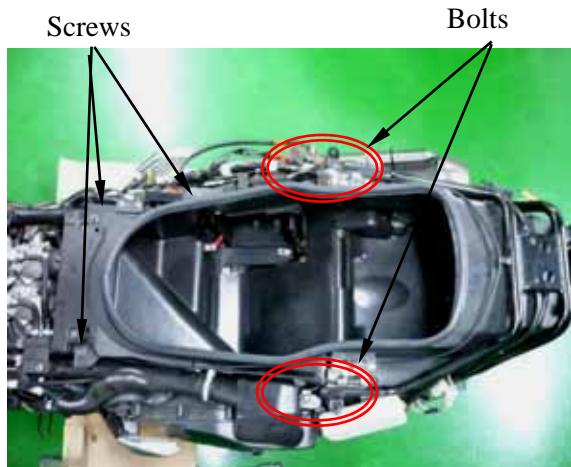
After installation, check the seat installation by moving the seat.



### **LUGGAGE BOX REMOVAL**

After removal the seat, side cover, carrier, body cover, then you can remove the luggage box.

Remove the screws and bolts.



Raise the luggage box, disconnect the luggage box light and accessory socket connectors.

#### **INSTALLATION**

Installation is in the reverse order of removal.



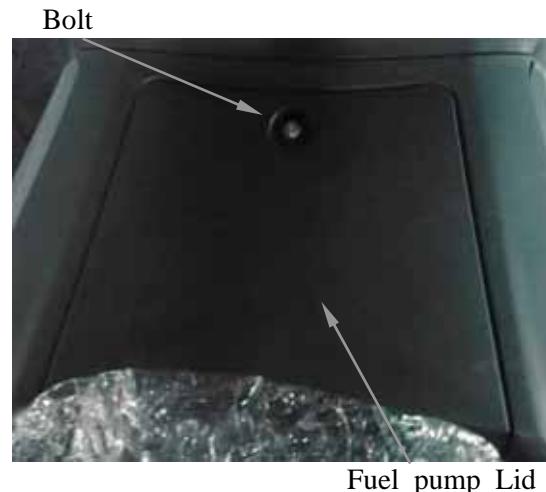
## **2. FRAME COVERS/ EXHAUST MUFFLER**

### **FUEL PUMP LID REMOVAL**

Remove the bolt and lid.

### **INSTALLATION**

Installation is in the reverse order of removal.



### **REAR SPOILER REMOVAL**

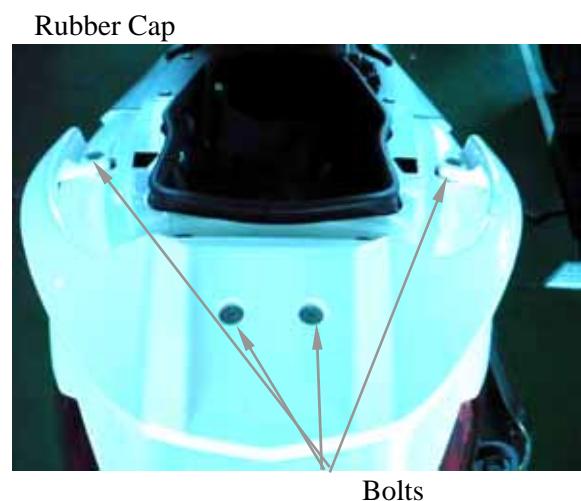
Unlock the seat with the ignition key.  
Open the seat.

Remove the rubber cap.

Remove four bolts and rear spoiler.

### **INSTALLATION**

Installation is in the reverse order of removal.

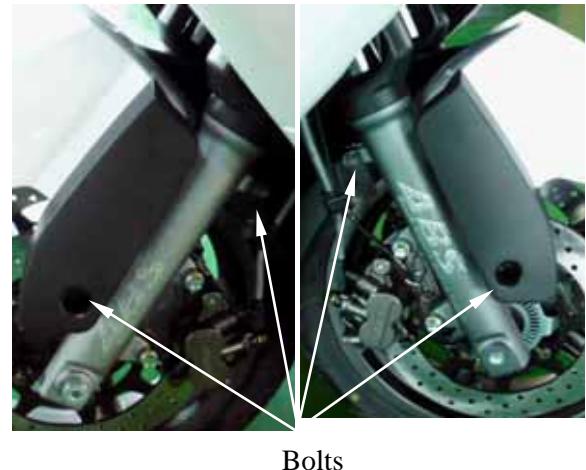


### **FRONT FENDER RE MOVAL**

Remove the six bolts and front fender.

### **INSTALLATION**

Installation is in the reverse order of removal.



## **2. FRAME COVERS/ EXHAUST MUFFLER**

### **UPPER HANDLEBAR COVER**

#### **REMOVAL**

Remove four screws and upper handlebar cover.

#### **INSTALLATION**

Installation is in the reverse order of removal.

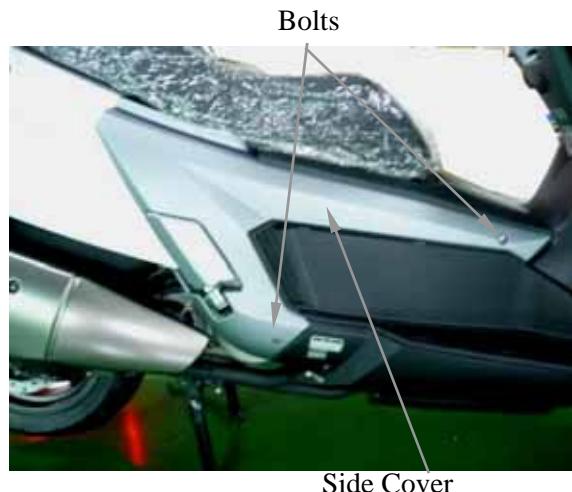


### **RIGHT/LEFT SIDE COVERS**

#### **REMOVAL**

After removing seat, the priority you should remove would be side covers, there are some screws and bolts hiding in these parts.

Remove the two bolts and side covers



Remove the hex bolt and foot step.



## **2. FRAME COVERS/ EXHAUST MUFFLER**

Remove the side cover following the way of picture showing.

Specially notice not to damage the tabs on the side covers, especially the hook structures on the end of side covers.



\*

Be careful not to damage the tabs on the side covers.



**Slap here to remove the side cover.**



**Installation priority.**

## **2. FRAME COVERS/ EXHAUST MUFFLER**

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### **RIGHT/LEFT FLOOR SKIRT**

#### **REMOVAL**

Remove the floor mat.

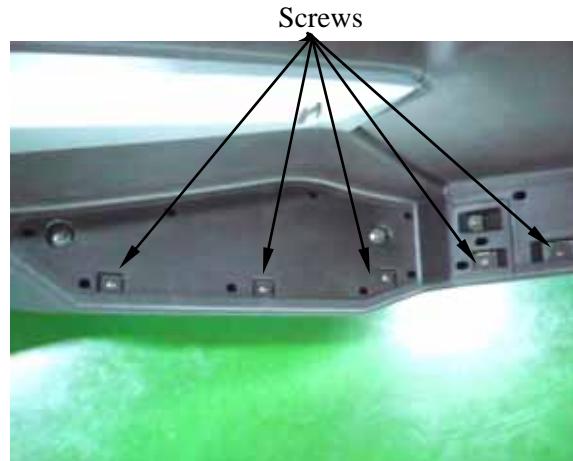
Remove the right and left center body cover .

Floor Mat



## 2. FRAME COVERS/ EXHAUST MUFFLER

Remove the seven screws.



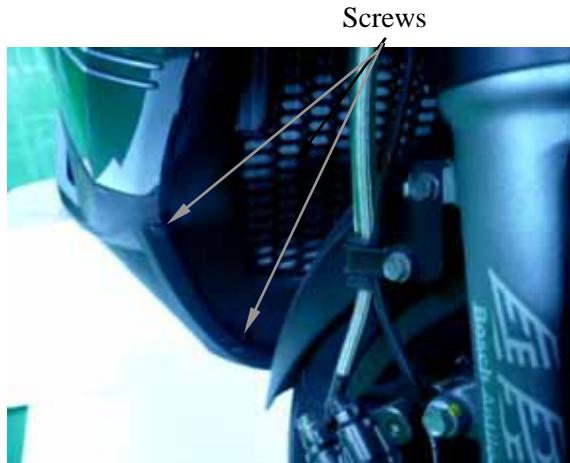
Remove two screws.

Remove the floor skirt.

\* Be careful not to damage the tabs on the floor skirt.

### INSTALLATION

Installation is in the reverse order of removal.



### FLOORBOARD

#### REMOVAL

Remove right and left center body cover.

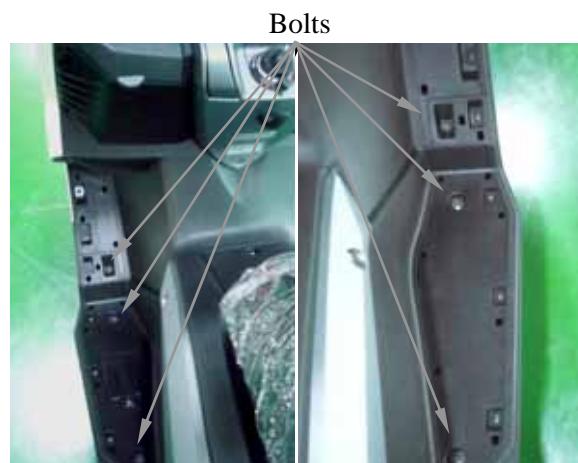
Remove the right and left floor skirt.

Remove the luggage box.

Remove six bolts, four screws and floorboard.

### INSTALLATION

Installation is in the reverse order of removal.



## **2. FRAME COVERS/ EXHAUST MUFFLER**

---

### **LICENCE LIGHT**

#### **REMOVAL**

Remove two screws.

Disconnect the license light connector and remove the license light.

#### **INSTALLATION**

Installation is in the reverse order of removal.



Screws

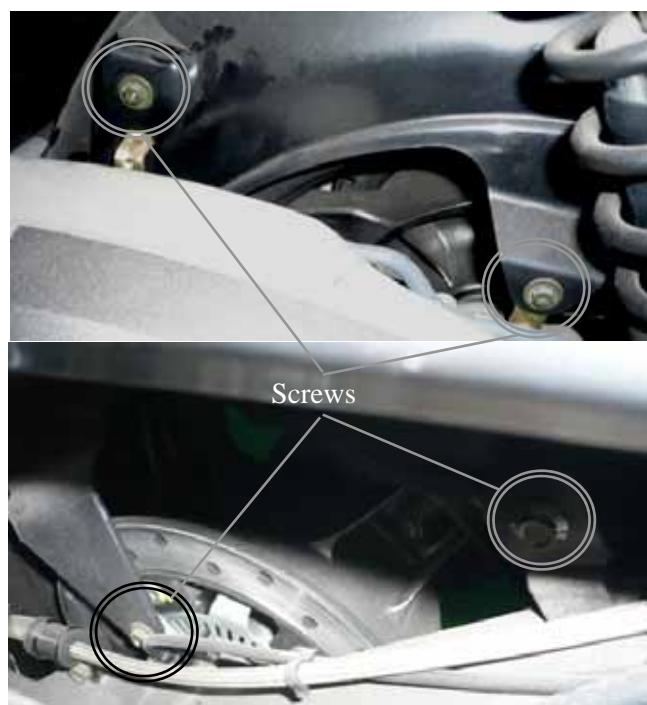
Connector

### **REAR FENDER**

#### **REMOVAL**

Remove the licence light.

Remove two screws.

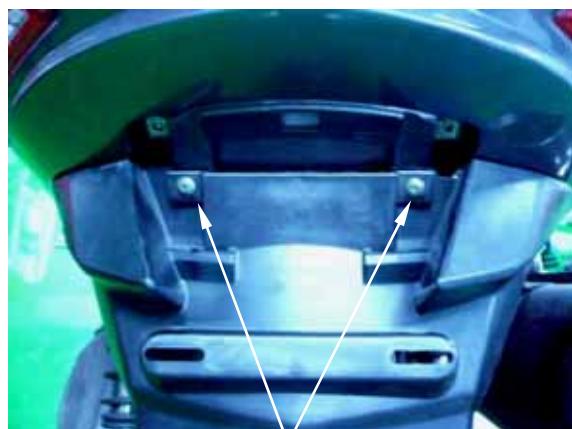


Screws

Remove two nuts and rear fender.

#### **INSTALLATION**

Installation is in the reverse order of removal.



Screws

## **2. FRAME COVERS/ EXHAUST MUFFLER**

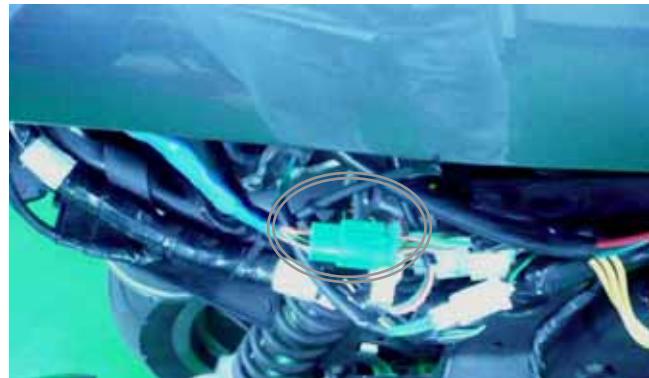
### **RIGHT/LEFT SIDE BODY COVER**

#### **REMOVAL**

Remove the luggage box.

Remove the rear spoiler.

Remove two bolts.



Taillight/Rear Turn Signal Light Connector

Raise the side body cover, disconnect the taillight/rear turn signal light connector and remove the side body cover.

#### **INSTALLATION**

Installation is in the reverse order of removal



Body cover

### **REAR BODY COVER**

#### **REMOVAL**

Remove the luggage box.

Remove the rear spoiler.

Remove two screws and rear body cover.



Be careful not to damage the tabs on the rear body cover.



#### **INSTALLATION**

Installation is in the reverse order of removal.

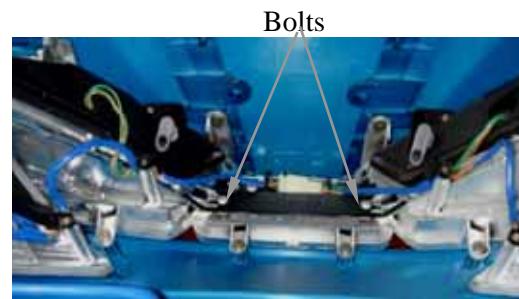
## **2. FRAME COVERS/ EXHAUST MUFFLER**

### **TAILIGHT/REAR TURN SIGNAL LIGHT**

#### **REMOVAL**

Remove the side and rear body cover.

Remove bolts and taillight/rear turn signal light.



#### **INSTALLATION**

Installation is in the reverse order of removal.

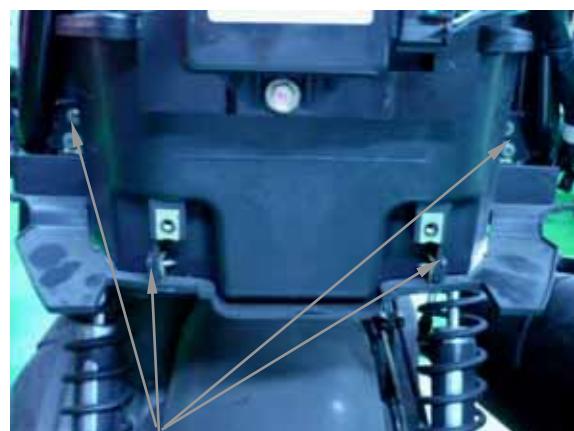


### **REAR LOWER COVER**

#### **REMOVAL**

Remove the side body cover.

Remove the rear lower cover.



### **REARVIEW MIRROR**

#### **REMOVAL**

Remove bolts lid.

Remove three bolts and rearview mirror.



## 2. FRAME COVERS/ EXHAUST MUFFLER

Remove the two bolts, rearview mirror holder and seat.

### INSTALLATION

Installation is in the reverse order of removal



### WINDSHIELD

#### REMOVAL

Remove four screws and windshield garnish.



Remove 6 bolts and windshield.

\* Be careful not to scratch or damage the windshield surface.

### INSTALLATION

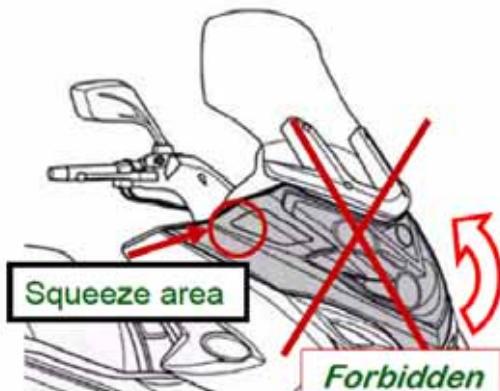
Installation is in the reverse order of removal.



## 2. FRAME COVERS/ EXHAUST MUFFLER

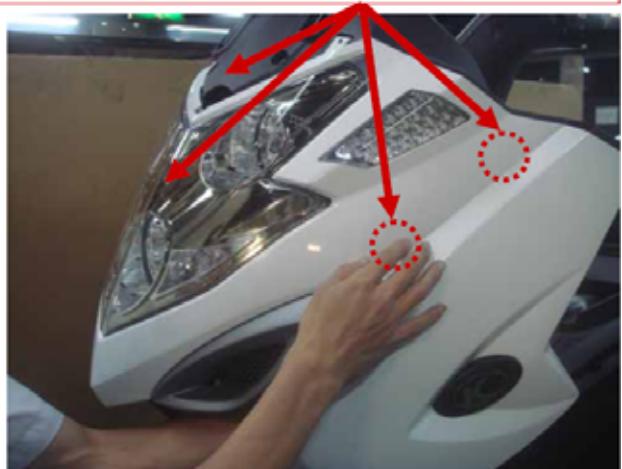
### FRONT COVER REMOVAL

The priority to remove is front cover (with head lights, then tunnel leg shield (81141-KKE5), there are some bolts and screws hide inside.

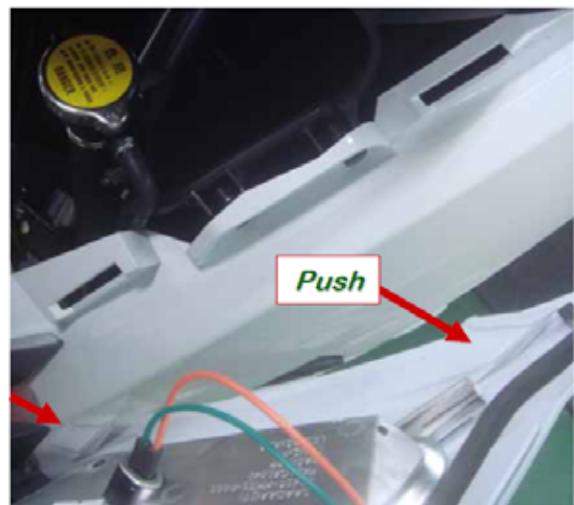


If you pull bottom end too hard directly, it would break the combined structures.

*Push and Separate the hook structures first.*



*Hook direction.*



## 2. FRAME COVERS/ EXHAUST MUFFLER

### Tunnel leg shield removal



Loosen the screw before removing the main switch cover and tunnel leg shield.



Remove six screws.



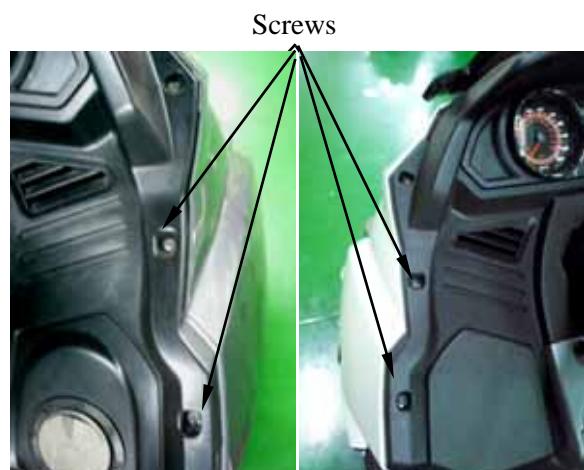
Remove two screws.

Remove one screw.

Disconnect headlight and turn signal light connectors.

#### INSTALLATION

Installation is in the reverse order of removal.



Turn Signal Light Connectors



## **2. FRAME COVERS/ EXHAUST MUFFLER**

### **HEADLIGHT REMOVAL**

Remove the front cover.

Remove 8 screws and headlight.

### **INSTALLATION**

Installation is in the reverse order of removal.



### **TURN SIGNAL LIGHT REMOVAL**

Remove the front cover.

Remove three screws and turn signal light.

### **INSTALLATION**

Installation is in the reverse order of removal.

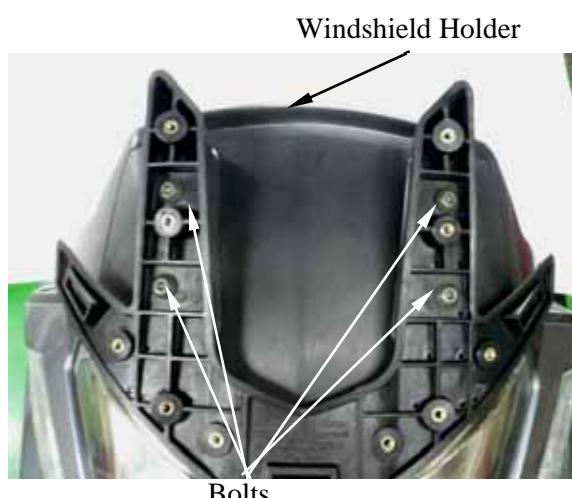


### **FRONT METER VISOR REMOVAL**

Remove the windshield.

Remove the front cover.

Remove four bolts and windshield holder.

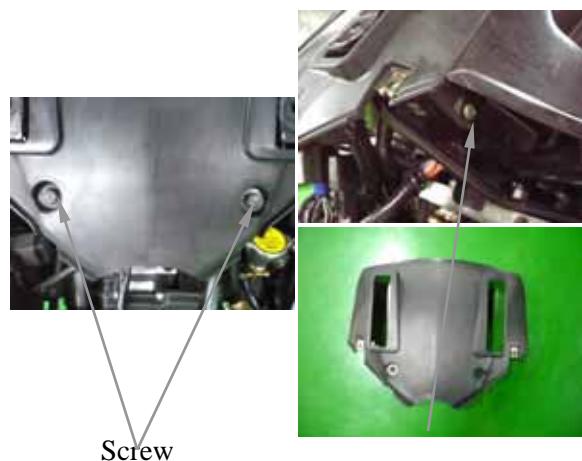


## 2. FRAME COVERS/ EXHAUST MUFFLER

Remove two screws and front meter visor.

### INSTALLATION

Installation is in the reverse order of removal.



### METER PANEL

#### REMOVAL

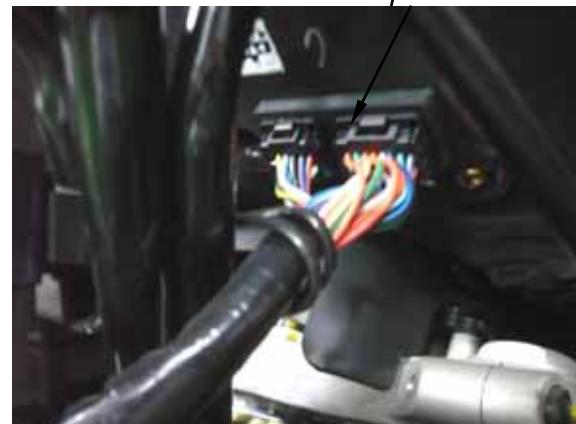
Remove the front cover.  
Remove the front meter visor.  
Remove the tunnel leg shield.  
Remove screws from instrument.



Disconnect the speedometer connector and remove meter panel.

### INSTALLATION

Installation is in the reverse order of removal.



## **2. FRAME COVERS/ EXHAUST MUFFLER**

### **METER**

#### **REMOVAL**

Remove the meter panel.

Remove two screws and meter.



### **INNER COVER**

#### **REMOVAL**

Remove the front cover.

Remove the floorboard.

Remove the meter panel.

Remove the shutter screw and shutter.

Turn the fuel fill cap garnish  
counterclockwise and remove it.

Remove three screws and disconnect the fuel  
fill duct.

Cap Garnish



Screws

## **2. FRAME COVERS/ EXHAUST MUFFLER**

Remove 2 bolts from front panel floor.



### **INSTALLATION**

Installation is in the reverse order of removal.

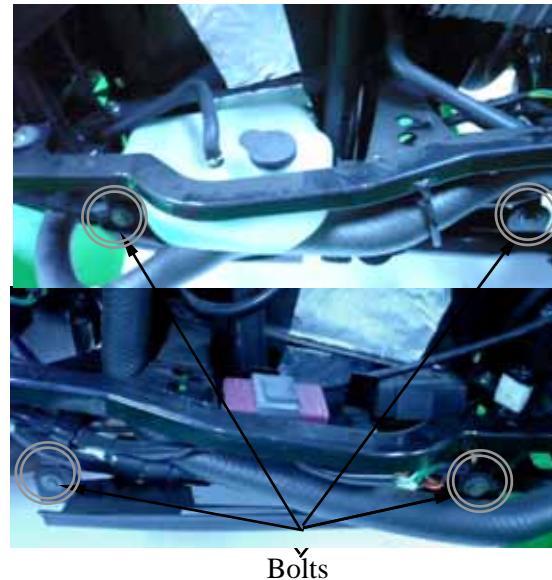
### **FRONT LOWER COVER**

#### **REMOVAL**

Remove the panel floor.

Remove the screws from lower cover.

Remove the lower cover.



## 2. FRAME COVERS/ EXHAUST MUFFLER

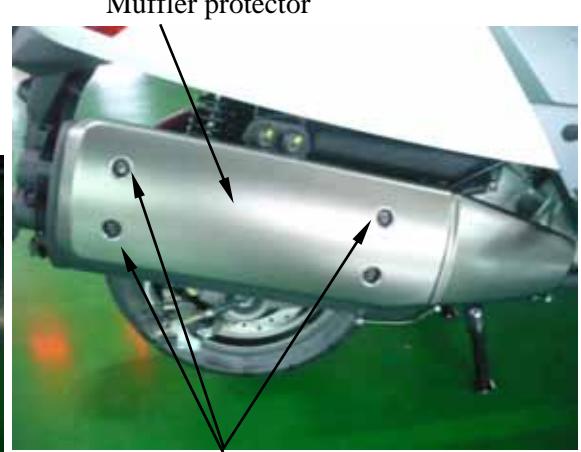
### EXHAUST MUFFLER

#### REMOVAL

Disconnect the connector with O2 heater/O2 sensor.

Remove screws from muffler protector.

Loosen the rear muffler cover screws.



Remove the exhaust pipe joint nuts and exhaust pipe.

Remove the muffler.



### INSTALLATION

Replace the gaskets with new ones.

Install the exhaust pipe and tighten the joint nuts.

**Torque: 1.0~1.4 kg·m**

Install the muffler and tighten the mount bolts.

**Torque: 3.2~3.8 kg·m**

Install and tighten the band bolts.

**Torque: 2.1 kg·m**



### **3. INSPECTION/ADJUSTMENT**

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**3**

### **INSPECTION/ADJUSTMENT**

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### 3. INSPECTION/ADJUSTMENT

#### SERVICE INFORMATION

##### GENERAL

- Place the scooter on a level ground before starting any work.
- Gasoline is extremely flammable and is explosive under certain conditions.
- Work in a well ventilated area. Smoking or allowing flames or sparks in the work area or where the gasoline is stored can cause a fire or explosion.
- If the engine must be running to do some work, make sure the area is well ventilated. Never run the engine in an enclosed area.
- The exhaust contains poisonous carbon monoxide gas that may cause loss of consciousness and may lead to death. Run the engine in an open area or with an exhaust evacuation system in an enclosed area.

#### SPECIFICATIONS

ITEM		SPECIFICATIONS		
Throttle free play		2-6 mm (1/16 – 1/4 in)		
Spark plug	NGK	DR8E		
Spark plug gap		0.6~0.7 mm		
Valve clearance	IN	0.16 mm		
	EX	0.22 mm)		
Engine oil capacity	At draining	2.75 liter		
	Total amount	3.0 liter		
Recommended engine oil		KYMCO 4-stroke oil or equivalent motor oil API service classification: SJ Viscosity: 5W50		
Engine idle speed		1250±100 rpm		
Final reduction oil capacity	At draining	0.36 liter		
	Total amount	0.4 liter		
Recommended final reduction oil		SAE 90		
Recommended brake fluid		DOT 4		
Tire size		Front	120/70-R15	
		Rear	160/60-R14	
Tire air pressure	Solo riding	Front	2 kgf/cm <sup>2</sup>	
		Rear	2.25 kgf/cm <sup>2</sup>	
	Two up riding	Front	2 kgf/cm <sup>2</sup>	
		Rear	2.5 kgf/cm <sup>2</sup>	
Minimum tire tread depth		Front	1.6 mm (0.06 in)	
		Rear	2.0 mm (0.08 in)	

### **3. INSPECTION/ADJUSTMENT**

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#### **TORQUE VALUES**

Engine oil drain plug	2.5 kgf•m
Oil strainer screen cap	1.2~1.8 kgf•m Apply oil to the threads and seating surface.
Oil filter cartridge	1~2 kgf•m Apply oil to the threads and seating surface.
Transmission oil drain bolt	2~3 kgf•m
Transmission oil filler bolt	1.2~1.8 kgf•m

#### **SPECIAL TOOLS**

Oil filter cartridge wrench	A120E00061
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### 3. INSPECTION/ADJUSTMENT

#### MAINTENANCE SCHEDULE

Perform the pre-ride inspection in the owner's manual at each scheduled maintenance period. This interval should be judged by odometer reading or months, whichever comes first.

I: INSPECT AND CLEAN, ADJUST, LUBRICATE OR REPLACE IF NECESSARY

C: CLEAN

R: REPLACE

A: ADJUST

L: LUBRICATE

ITEM	FREQUENCY WHICHEVER COMES FIRST	NOTE	ODOMETER READING [NOTE (1)]							
			X 1000 km	1	6	12	18	24	30	36
			X 1000 mi	0.6	4	8	12	16	20	24
AIR CLEANER	NOTE 2				R	R	R	R	R	R
SPARK PLUGS					R		R		R	
THROTTLE OPERATION					I		I		I	
VALVE CLEARANCE							I			
FUEL LINE					I		I		I	
CRANKCASE BREATHER	NOTE 3				C	C	C	C	C	C
ENGINE OIL				R	R	R	R	R	R	R
ENGINE OIL FILTER				R	R	R	R	R	R	R
ENGINE OIL STRAINER SCREEN				C	C	C	C	C	C	C
ENGINE IDLE SPEED				I	I	I	I	I	I	I
RADIATOR COOLANT	NOTE 6				I		I		R	
COOLING SYSTEM					I		I		I	
SECONDARY AIR SUPPLY SYSTEM					I		I		I	
TRANSMISSION OIL	NOTE 5		R							
DRIVE BELT	NOTE 4					I			I	
CLUTCH SHOE WEAR					I	I	I	I	I	I
BRAKE FLUID	NOTE 7			I	I	I	I	R	I	I
BRAKE PAD WEAR				I	I	I	I	I	I	I
BRAKE SYSTEM			I		I		I		I	
BRAKE LIGHT SWITCH					I		I		I	
BRAKE LOCK OPERATION				I	I	I	I	I	I	I
SIDE STAND					I		I		I	
SUSPENSION					I		I		I	
HEADLIGHT AIM					I		I		I	
NUTS, BOLTS, FASTENERS			I		I		I		I	
WHEELS/TIRES					I		I		I	
STEERING BEARINGS				I		I		I		I

### **3. INSPECTION/ADJUSTMENT**

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**NOTE:**

- 1 At higher odometer readings, repeat at the frequency interval established here.
- 2 Service more frequently if the scooter is ridden in unusually wet or dusty areas.
- 3 Service more frequently when riding in rain or at full throttle.
- 4 Inspect every 18000 km (12000 mi) after replacement.
- 5 Replace every 1 year, or every 10000km (6000mi), whichever comes first.
- 6 Replace every 2 year, or at indicated odometer interval, whichever comes first.
- 7 Replace every 2 years. Replacement requires mechanical skill.

### 3. INSPECTION/ADJUSTMENT

\* • Do not smoke or allow flames or sparks in your working area.

#### FUEL FILTER

Visually check the fuel filter. If accumulation of sediment or clogging is found, replace the fuel filter with a new one.



Fuel Filter

#### THROTTLE OPERATION

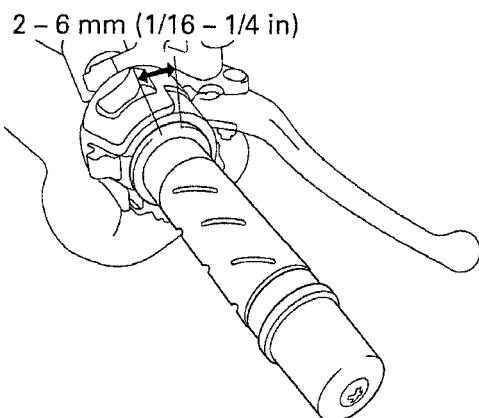
Check for smooth throttle grip full opening and automatic full closing in all steering positions.

Check the throttle cables and replace them if they are deteriorated, kinked or damaged.

Lubricate the throttle cables, if throttle operation is not smooth.

Measure the throttle grip free play.

**Free Play:** 2~6 mm (1/16~1/4 in)



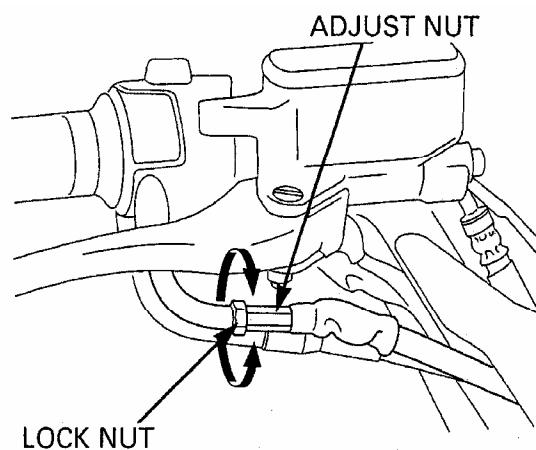
### **3. INSPECTION/ADJUSTMENT**

Throttle grip free play can be adjusted at either end of the throttle cable.

Minor adjustment is made with the upper adjuster.

Slide the rubber sleeve back to expose the throttle cable adjuster.

Adjust the free play by loosening the lock nut and turning the adjuster.



### **3. INSPECTION/ADJUSTMENT**

#### **AIR CLEANER**

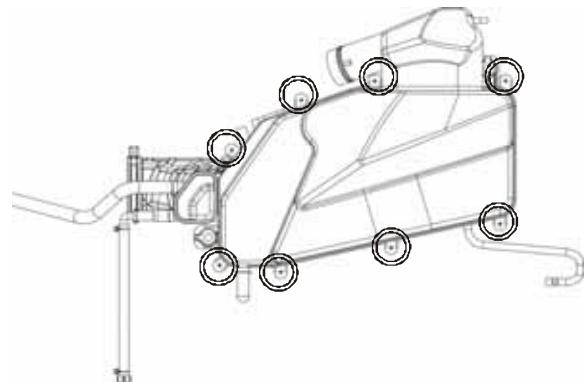
The air cleaner should be serviced at regular intervals. Service more frequently when riding in unusually wet or dusty areas.

Install a new air cleaner element. Use the KYMCO genuine air cleaner element or an equivalent air cleaner element specified for your model. Using the wrong, KYMCO air cleaner element or a non-KYMCO air cleaner which is not of equivalent quality may cause premature engine wear or performance problems.

#### **Air cleaner element removal/installation**



Remove the screws and air cleaner housing cover

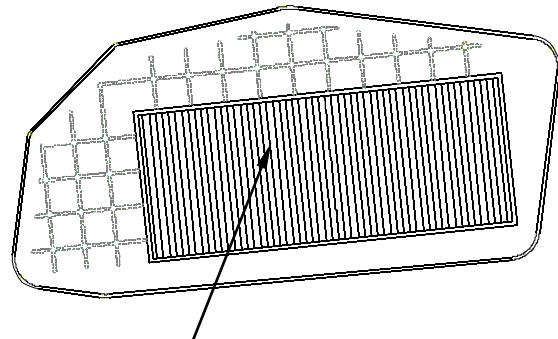


### **3. INSPECTION/ADJUSTMENT**

Remove the air cleaner element.

Check the cleaner element.

Install the removed parts in the reverse order of removal.



Air Cleaner Element

#### **Air cleaner element removal/installation**

Remove the luggage box.

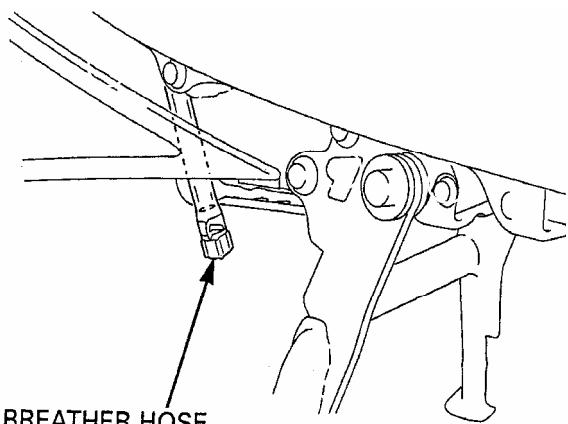
Remove the six screws and air cleaner cover.

### **CRANKCASE BREATHER**

Remove the crankcase breather tube plug from the tube and drain deposits into a suitable container.

Reinstall the crankcase breather tube plug.

Service more frequently when riding in rain, at full throttle, or after the scooter is washed or overturned. Service if the deposit level can be seen in the transparent section of the drain tube.



Spark plug lid

### **SPARK PLUG**

#### **REMOVAL**

Remove the spark plug maintenance lid

### 3. INSPECTION/ADJUSTMENT

Remove the spark plug using a equipped spark plug wrench or an equivalent tool.

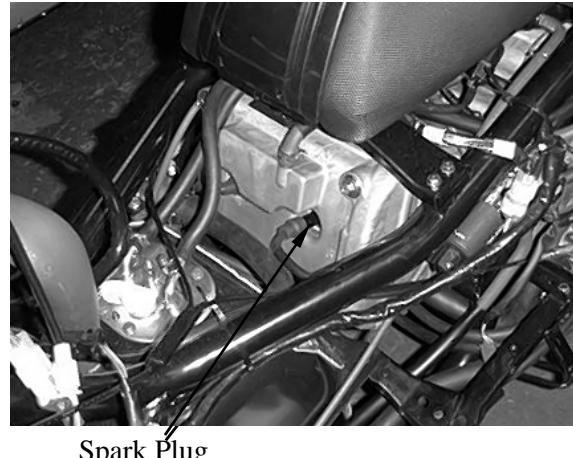
Inspect or replace as described in the maintenance schedule.

#### INSPECTION

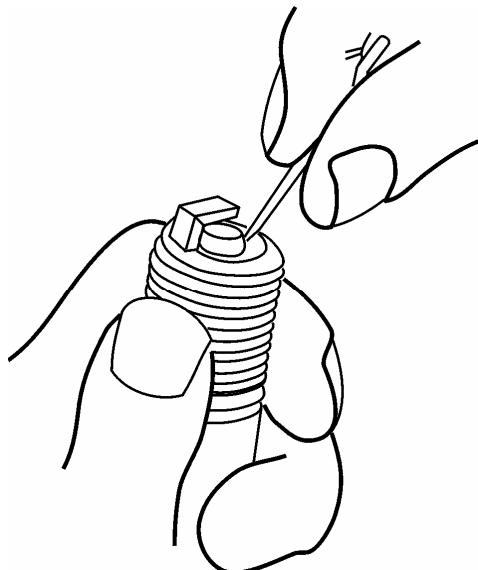
Remove the carbon deposits from the spark plug with a small wire brush or a spark plug cleaning machine.

The spark plug should be replaced periodically. Whenever removing the carbon deposits, be sure to observe the operational color of the spark plug's porcelain tip. This color tells you whether or not the standard spark plug is suitable for your type of usage. A normal operating spark plug should be light brown or tan color. If the spark plug is very white or glazed appearing, then it has been operating much too hot. This spark plug should be replaced with the colder plug.

#### Recommended spark plug: DR8E



Spark Plug



Measure the spark plug gap between the center and side electrodes with the feeler gauge.

If necessary, adjust the gap by bending the side electrode carefully.

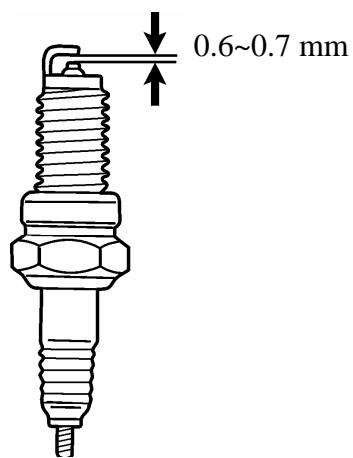
**Spark plug gap:**  
**0.6–0.7 mm (0.024–0.028 in)**

Install the spark plug in the cylinder head and hand tighten, then torque to the specification.

**Torque: 1.0~1.4 kg·m**

Install the spark plug cap.

Install the removed parts in the reverse order of removal.



### 3. INSPECTION/ADJUSTMENT

#### VALVE CLEARANCE



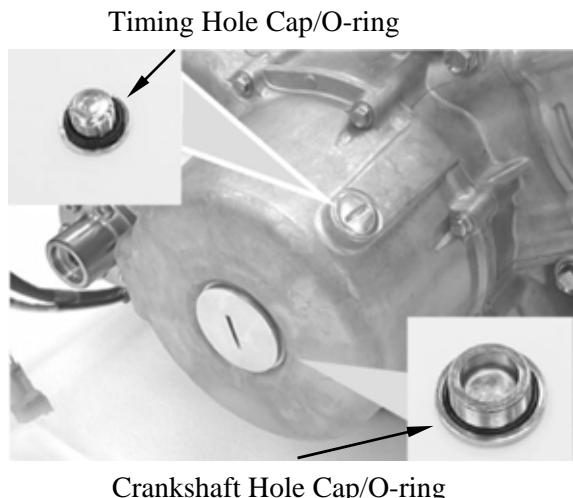
Inspect and adjust the valve clearance while the engine is cold (Below 35°C/95°F).

#### Inspection and adjust

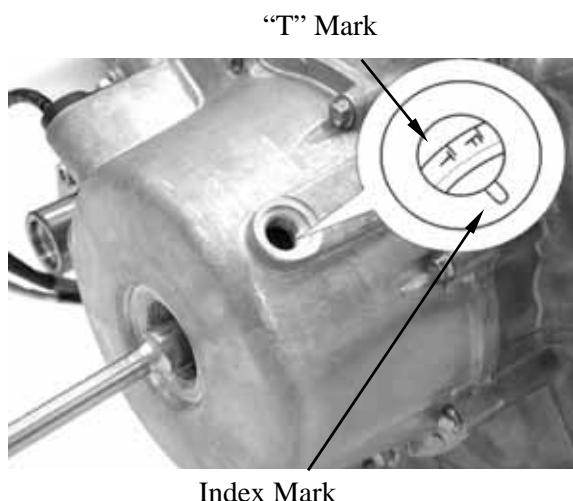
Remove the cylinder head cover.

Remove the timing hole cap and O-ring.

Remove the crankshaft hole cap and O-ring.

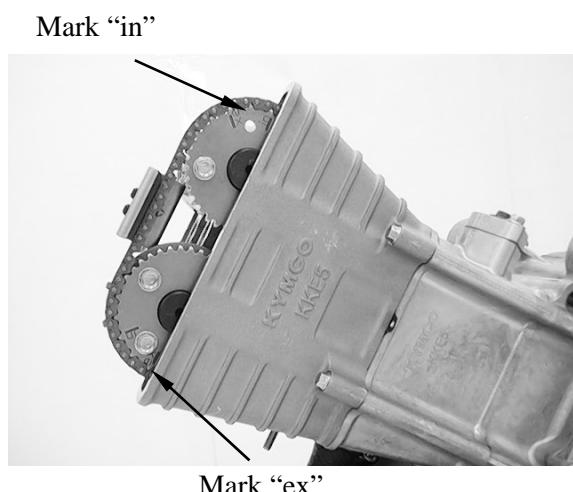


Turn the crankshaft clockwise and align the "T" mark on the flywheel with the index mark on the right crankcase cover.



The punch marks "in" and "ex" on the camshaft should be aligned with the boundary of cylinder head as shown.

If the punch marks on the camshaft are facing downward, turn the crankshaft clockwise one full turn (360°) and the punch marks are facing upward.



### 3. INSPECTION/ADJUSTMENT

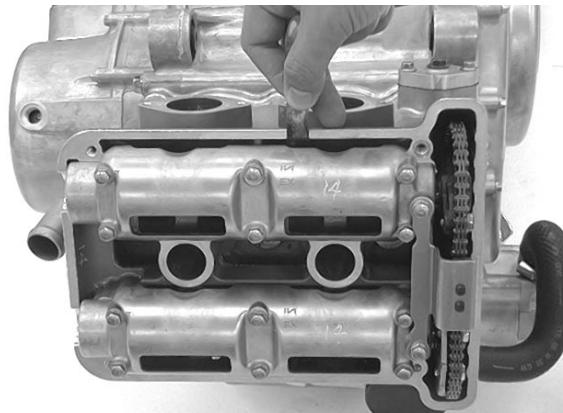
Insert the feeler gauge between the valve lifter and the cam lobe.

Check the valve clearance for the valves using a feeler gauge.

#### Valve Clearance

**IN:0.16 mm(0.006 in)**

**EX:0.22 mm(0.009in)**



Remove the camshaft.

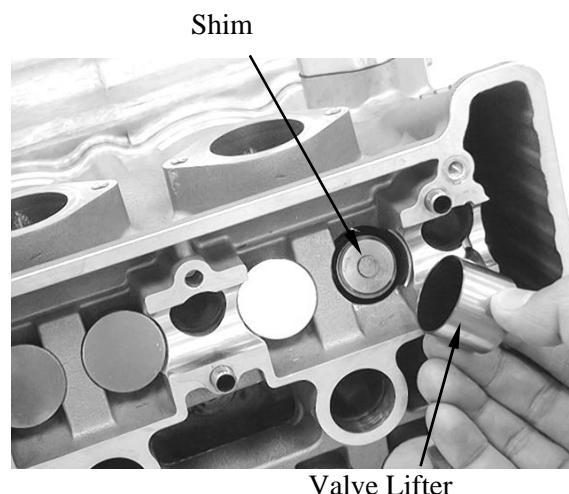
Remove the valve lifters and shims.

The shims may stick to the inside of the valve lifter. Don't allow the shims to fall into the crankcase.

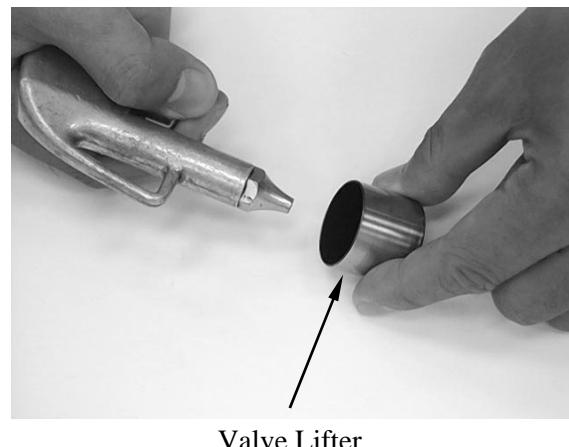
Mark all of shims and valve lifters to ensure correct reassembly in original locations.

The valve lifter can be easily removed with a valve lapping tool or magnet.

The shims can be easily removed with tweezers or magnet.



Clean the valve shim contact area in the valve lifter with compressed air.



### 3. INSPECTION/ADJUSTMENT

Measure the shim thickness and record it.

Calculate the new shims thickness using the equation below.

$$A+C=B+D$$

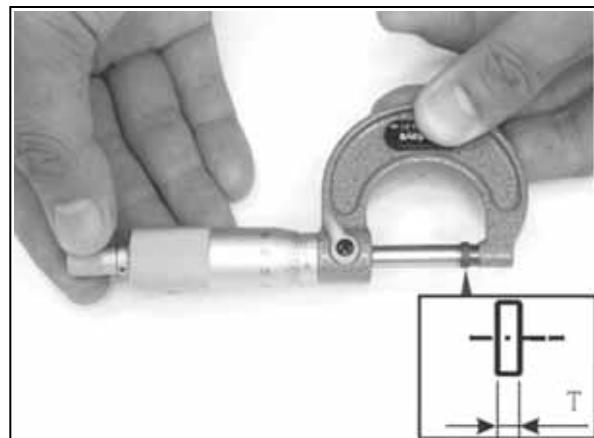
A: New shim thickness

B: Record valve clearance

C: Specified valve clearance

D: Old shim thickness

Grade number	“T” Thickness	Mark
01	1.80	180
02	1.85	185
03	1.90	190
04	1.95	195
05	2.00	200
06	2.05	205
07	2.10	210
08	2.15	215
09	2.20	220
10	2.25	225
11	2.30	230
12	2.35	235
13	2.40	240
14	2.45	245
15	2.50	250
16	2.55	255
17	2.60	260
18	2.65	265
19	2.70	270
20	2.75	275
21	2.80	280
22	2.85	285
23	2.90	290
24	2.95	295
25	3.00	300



Make sure the correct shim is selected by measuring it with a micrometer.

Reface the valve seat if carbon deposits result in a clearance of over 2.8mm

Install the removed parts in the reverse order of removal.

### 3. INSPECTION/ADJUSTMENT

#### ENGINE OIL

##### OIL LEVEL INSPECTION

Start the engine and let it idle for 2 – 3 minutes.

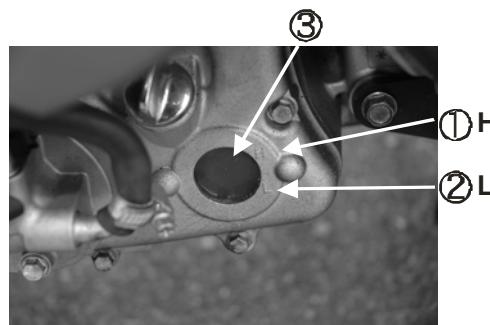
Turn off the engine and support the scooter level surface.

Check the engine oil level. The level must be maintained between the upper H (1) and lower level L (2) marks on the oil inspection screen (3).

If the oil level is below or near the lower level line, add the recommended engine oil until the oil level is to the upper level.

Change the engine oil with the engine at normal operating temperature and the scooter on its center stand to assure complete and rapid draining.

Remove the oil filler cap from the right crankcase cover.



**Engine oil capacity: 3.0 L**

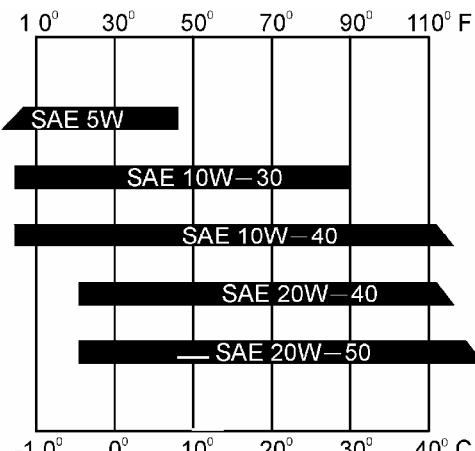
**Engine oil exchanging capacity: 2.6 L**

##### Recommended engine oil:

KYMCO 4-stroke oil or equivalent motor oil API service classification: SJ

Viscosity: SAE 5W50

\* Other viscosities shown in the chart may be used when the average temperature in your riding area is within the indicated range.



#### ENGINE OIL & STARINER SCREEN

When running in very dusty conditions, oil changes should be performed more frequently than specified in the maintenance schedule.

Please dispose of used engine oil in a manner that is compatible with the environment. We suggest you take it in a sealed container to your local recycling center or service station for reclamation. Do not throw it in the trash or pour it on the ground or down a drain.

Used engine oil may cause skin cancer if repeatedly left in contact with the skin for prolonged periods. Although this is unlikely unless you handle used oil on a daily basis, it is still advisable to thoroughly wash your hands with soap and water as soon as possible after handling used oil.

### 3. INSPECTION/ADJUSTMENT

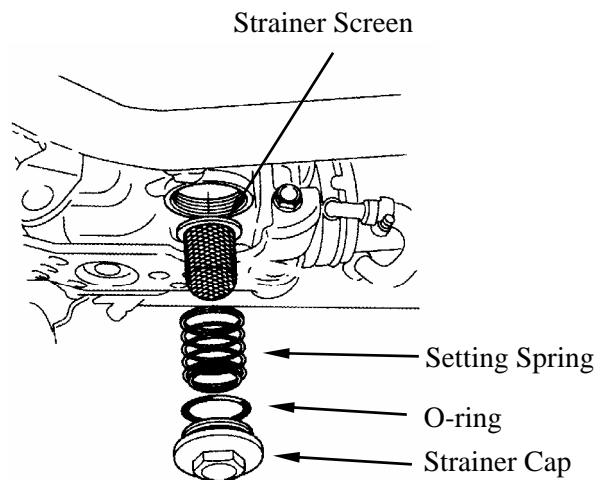
Place a drain pan under the crankcase and remove the oil strainer cap.

The setting spring and oil strainer screen will come out when the oil strainer cap is removed.



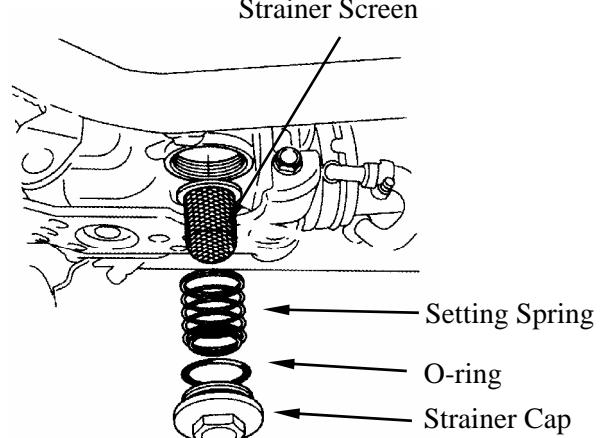
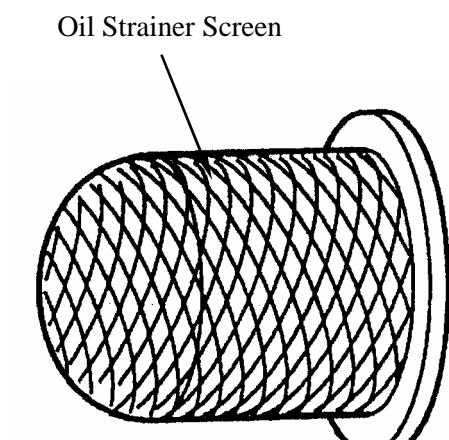
Clean the oil strainer screen.

After draining the oil completely, install the strainer screen and setting spring into the engine.



Apply clean engine oil to the strainer cap threads, flange surface and a new O-ring. Install and tighten the strainer cap with a new O-ring.

**Torque: 1~2 kgf•m**



### **3. INSPECTION/ADJUSTMENT**

Fill the crankcase with the recommended engine oil.

**Engine oil capacity: 3.0 L**

**Engine oil exchanging capacity: 2.6 L**

Install the oil filler cap.

Check the engine oil level.

Make sure there are no oil leaks



#### **ENGINE OIL FILTER CARTRIDGE REPLACEMENT**

Drain the engine oil.

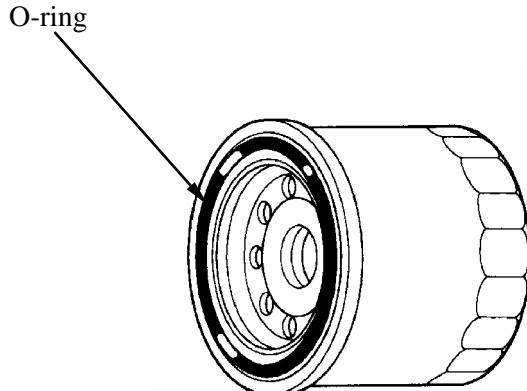
Remove and discard the oil filter cartridge using the special tool.

**Tool:**

**Oil filter wrench: A120E00061**

Apply clean engine oil to the new oil filter cartridge threads, flange surface and a new O-ring.

Install the new oil filter cartridge and tighten it to the specified torque.



**Torque: 2.4~3 kgf•m**

Refill the engine oil

### 3. INSPECTION/ADJUSTMENT

#### RADIATOR COOLANT

Place the scooter on its center stand.

The reserve tank is under left footboard. Check the coolant level through the inspection window (1) at the left side skirt while the engine is at the normal operating temperature with the scooter in an upright position. If the coolant level is below the LOWER level mark (3), remove the left floor mat, remove the lid screw and reserve tank lid and the

Reserve tank cap (4) and add coolant mixture until it reaches the upper level mark (2).

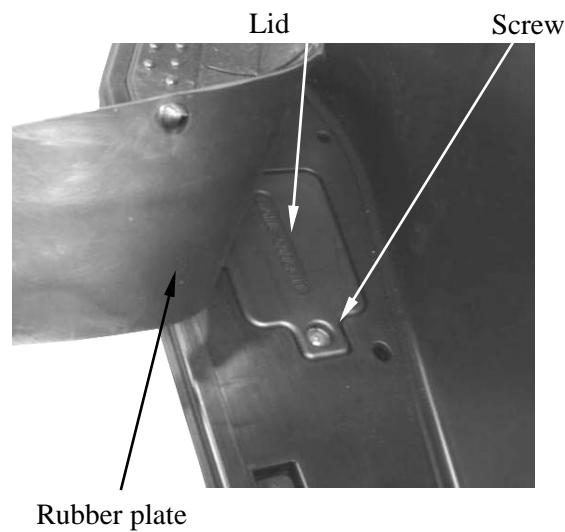
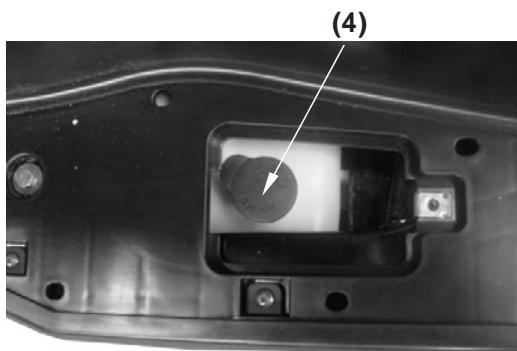
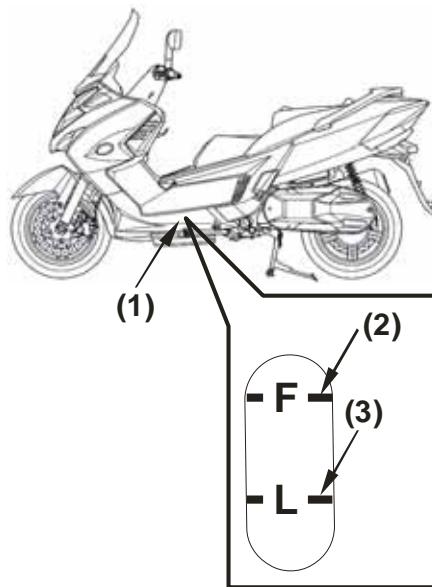
Remove the left floor mat and remove screw and reserve tank lid.

Remove reserve tank cap.

Check to see if there are any coolant leaks when the coolant level decrease very rapidly. If reserve tank becomes completely empty, there is a possibility of air getting into the cooling system.

Be sure to remove all air from the cooling system.

Reinstall the filler cap.



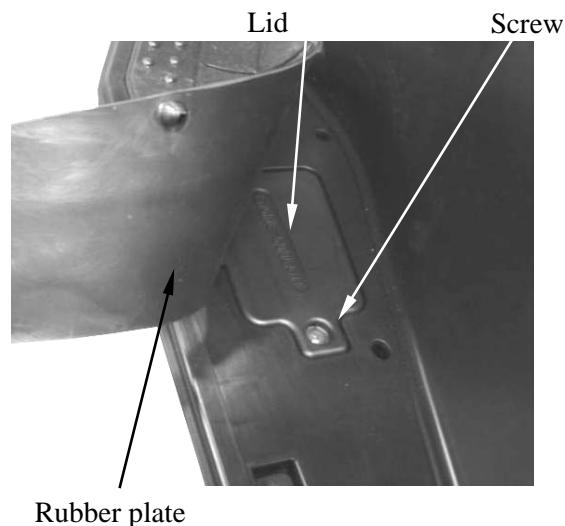
### **3. INSPECTION/ADJUSTMENT**

#### **COOLING SYSTEM**

Check for any coolant leakage from the water pump, radiator hoses and hose joints.

Check the radiator hoses for cracks or deterioration and replace if necessary.

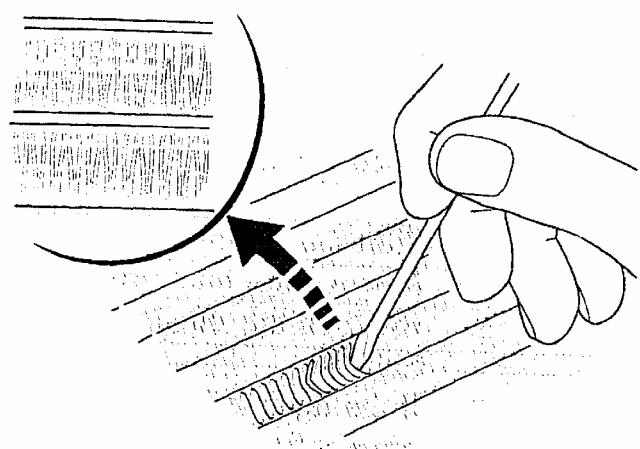
Check that all hose clamps are tight.



Check the radiator air passages for clogs or damage.

Straighten any bent fins, and remove insects, mud or other obstructions with compressed air or low water pressure.

Replace the radiator if the air flow is restricted over more than 20% of the radiating surface.



### **3. INSPECTION/ADJUSTMENT**

#### **TRANSMISSION OIL OIL CHANGE**

Place the scooter in its center stand.  
 Remove the transmission oil drain bolt (1) and the transmission oil filler bolt (2), slowly turn the rear wheel and drain the oil.  
 After draining the oil completely, install the oil drain bolt with a new sealing washer and tighten it.

**Torque: 2~3 kgf·m**

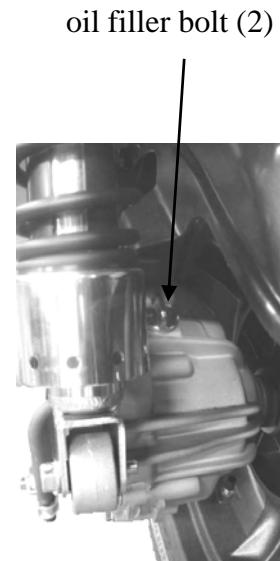


oil drain bolt (1)

Fill the transmission case with recommended oil.  
 Recommended transmission oil: SAE 90

**Oil capacity: 0.40 L**  
**Oil exchanging capacity: 0.32L**

Install the transmission oil filler bolt with a new sealing washer and tighten it.



oil filler bolt (2)

### **3. INSPECTION/ADJUSTMENT**

#### **BRAKE FLUID**

\* ♦ Do not mix different type of fluid, as they are not compatible with each other.

♦ Do not allow foreign material to enter the system when filling the reservoir.

♦ Avoid spilling fluid on painted, plastic or rubber parts. Place a rag over these parts whenever the system is serviced.

Brake fluid level inspection:

With the scooter in an upright position, check the front and rear fluid level. The level should be above the lower level mark. If the level is at or below the lower level mark "L", check the brake pads for wear.

Worn break pads should be replaced immediately. If the pads are not worn, have your brake system inspected for leaks. Do not ride your scooter unless the brakes are in perfect working order.

Brake fluid type: DOT 4 (from a sealed container)

Note: Other checks- Make sure there are no fluid leaks. Check for deterioration or cracks in the hoses and fittings.



### **3. INSPECTION/ADJUSTMENT**

#### **BRAKE PAD WEAR**

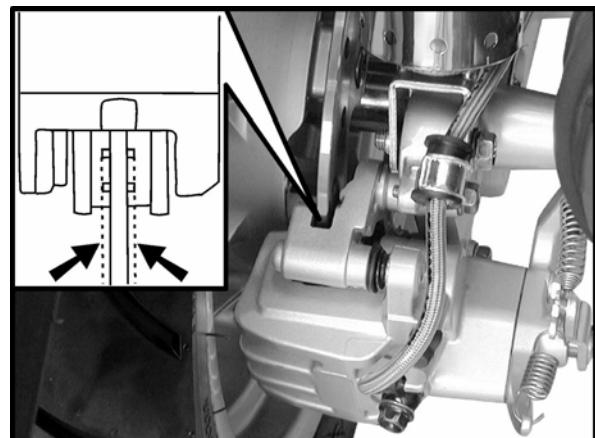
Brake pad wear depends upon the severity of usage, the type of riding, and road conditions. (Generally, the pads will wear faster on wet and dirty roads.) Inspect the pads at each regular maintenance interval.

##### **Front/Rear brake**

Check the cutout in each brake pad, the cutout should be visible, indicating that brake pad is not worn down to the brake rotor. If either pad is worn to the cutout, replace both pads as a set.



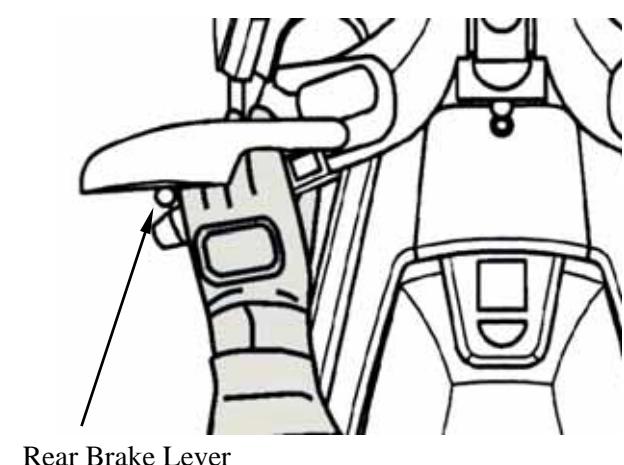
#### **BRAKE SYSTEM**



##### **INSPECTION**

Check the free play of front/rear brake lever.

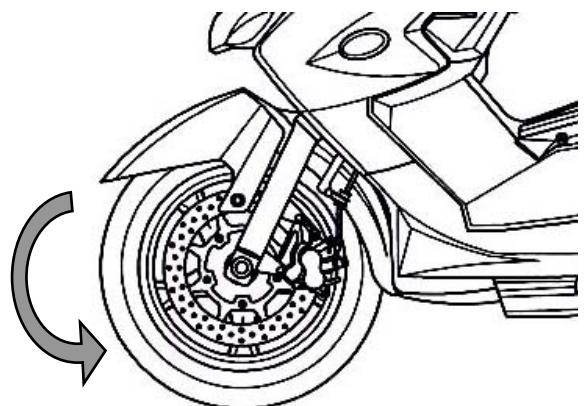
**Standard of free play:** 10~20 mm



### **3. INSPECTION/ADJUSTMENT**

Operate the rear brake lever.

Make sure the front wheel does not turn while the brake lever is operated.



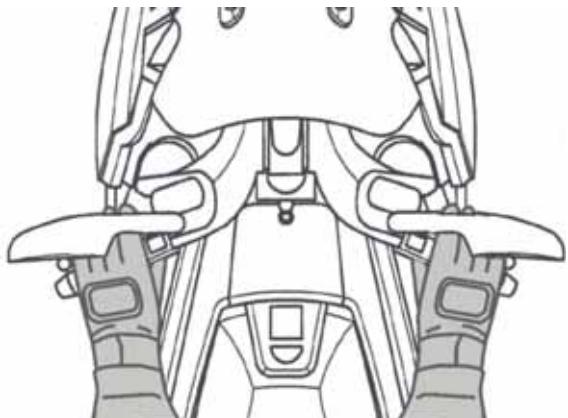
Firmly apply the brake lever and check that no air has entered the system.

If the lever feels soft or spongy when operated, bleed the air from the system.

Inspect the brake hose and fittings for deterioration, cracks and signs of leakage.

Tighten any loose fittings.

Replace hoses and fittings as required.



#### **BRAKE LOCK OPERATION**

##### **INSPECTION**

Stop the engine and put the scooter on its center stand on level ground.

Pull up the parking brake lever slowly and check the parking brake lever stroke.

**Parking brake lever stroke: 3—6 cm**



If out of specification, adjust the parking brake lever.

### 3. INSPECTION/ADJUSTMENT

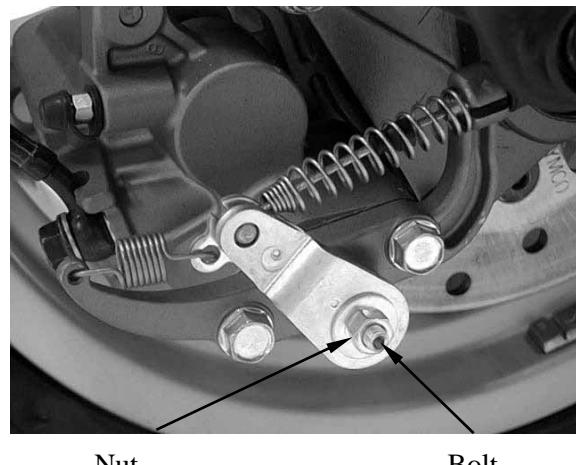
#### ADJUSTMENT

Place the scooter on its center stand.  
 Release the parking brake lever lock.  
 Pull up the parking brake lever.

Loosen the lock nut.  
 Turn the adjust bolt until you feel resistance when turn the rear wheel by your hand.  
 Hold the adjust bolt and tighten the lock nut securely.

Release the parking brake lever.  
 Make sure the rear wheel turns smoothly.  
 Pull the parking brake lever slowly and check the lever stroke.

**Standard: 3—6 notches**



Nut

Bolt

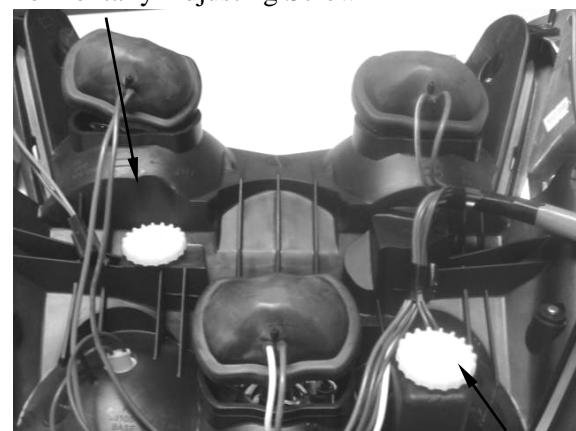
#### HEADLIGHT AIM

Place the scooter on a level surface.  
 Adjust the headlight beam vertically by turning the vertical beam adjuster.  
 A clockwise rotation moves the beam up and counterclockwise rotation moves the beam down.

Adjust the headlight beam horizontally by turning the horizontal beam adjuster.  
 A clockwise rotation moves the beam toward the right side of the rider.

\* Adjust the headlight beam as specified by local laws and regulations.

Horizontally Adjusting Screw



Vertically Adjusting Screw

### **3. INSPECTION/ADJUSTMENT**

#### **SIDE STAND**

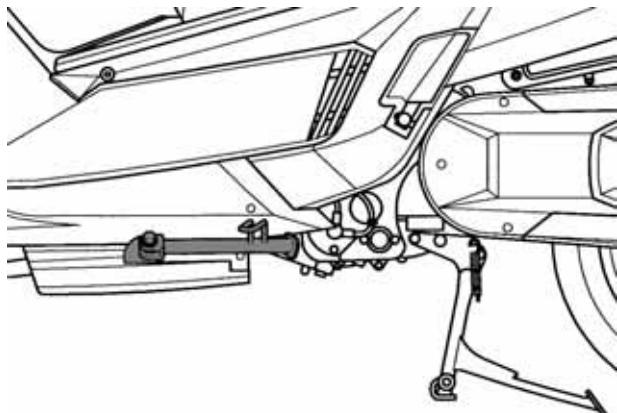
Support the scooter on a level surface.

Check the side stand spring for fatigue or damage.

Check the side stand assembly for smooth movement and lubricate the side stand pivot if necessary.

Check the side stand ignition cut-off system:

- ✓ Start the engine.
- ✓ Fully lower the side stand while running the engine.
- ✓ The engine should stop as the side stand is lowered.



If there is a problem with the system, check the side stand switch.

#### **SUSPENSION**

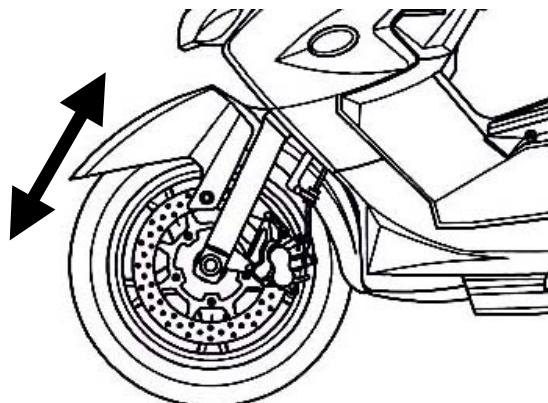
##### **FRONT SUSPENSION INSPECTION**

Check the action of the forks by operating the front brakes and compressing the front suspension several times.

Check the entire assembly for signs of leaks, damage or loose fasteners.

Replace damaged components which cannot be repaired.

Tighten all nuts and bolts.



### **3. INSPECTION/ADJUSTMENT**

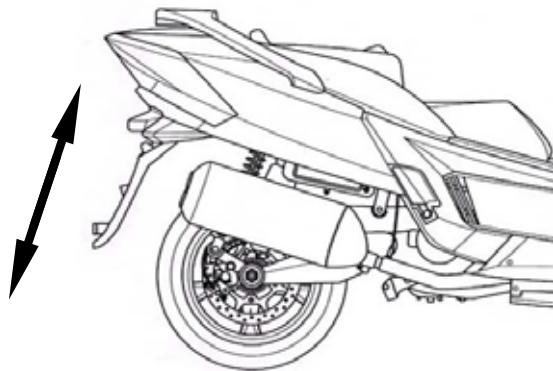
#### **REAR SUSPENSION INSPECTION**

Check the action of the shock absorber by compressing it several times.

Check the entire shock absorber assembly for signs of leaks, damage or loose fasteners.

Replace damaged components which cannot be repaired.

Tighten all nuts and bolts.



#### **NUTS, BOLTS, FASTENERS**

Check that all chassis nuts and bolts are tightened to their correct torque values (page 1-9).

Check that all safety clips, hose clamps and cable stays are in place and properly secured.

#### **WHEELS/TIRES**

Tire pressure should be checked when the tires are cold.

### **3. INSPECTION/ADJUSTMENT**

#### **Recommended tire size:**

Tire size: front ..... 120/70-R15

Tire size: rear ..... 160/60-R14

Check the tires for cuts, embedded nails, or other damage.

Check the front and rear wheels for trueness.

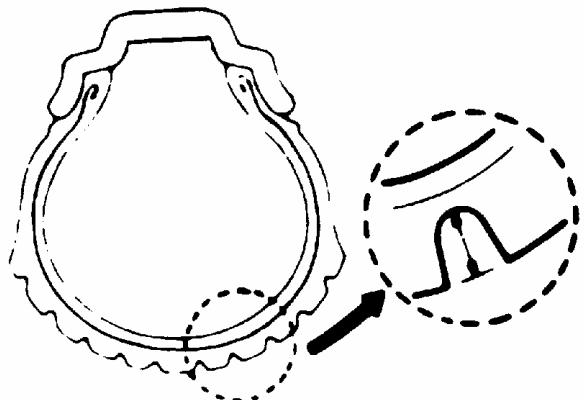
Measure the tread depth at the center of the tires.

Replace the tires when the tread depth reaches the following limits.

#### **Minimum tread depth:**

**Front: 1.6 mm**

**Rear: 2.2 mm**



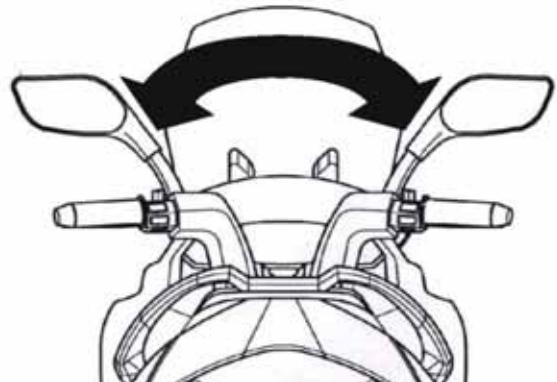
### **STEERING HEAD BEARINGS**

Check that the control cables do not interfere with handlebar rotation.

Support the scooter securely and raise the front wheel off the ground.

Check that the handlebar moves freely from side to side.

If the handlebar moves unevenly, binds, or has vertical movement, inspect the steering head bearings.



## **4. LUBRICATION SYSTEM**

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**4**

### **LUBRICATION SYSTEM**

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SERVICE INFORMATION-----	4- 2
TROUBLESHOOTING-----	4- 3
OIL PRESSURE SWITCH-----	4- 4
OIL PRESSURE RELIEF VALVE-----	4- 4
OIL PUMP-----	4- 5
OIL COOLER-----	4-8

## **4. LUBRICATION SYSTEM**

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## 4. LUBRICATION SYSTEM

### SERVICE INFORMATION

#### GENERAL INSTRUCTIONS

- The oil pump service may be done with the engine installed in the frame.
- When removing and installing the oil pump use care not to allow dust or dirt to enter the engine.
- If any portion of the oil pump is worn beyond the specified service limits, replace the oil pump as an assembly.
- After the engine has been installed check that there are no oil leaks and that oil pressure is correct.
- For oil pressure indicator inspection, refer to section 20 of this manual.

#### SPECIFICATIONS

Unit: mm

ITEM		STANDARD	SERVICE LIMIT
Engine oil capacity	At draining	2.6 liter	—
	At disassembly	3.0 liter	—
Recommended engine oil		KYMCO 4-stroke oil or equivalent motor oil API service classification SJ Viscosity: SAE 5W-50	—
Oil pump rotor	Tip clearance	0.15 mm	0.2 mm
	Body clearance	0.15 – 0.2 mm	0.25 mm
	Side clearance	0.04 – 0.09 mm	0.12 mm

#### TORQUE VALUES

Oil pump bolt	0.8~1.2 kgf•m
Oil cooler bolt	1.2~1.8 kgf•m
Oil pressure switch	1~1.4 kgf•m
Oil filter cartridge	2.0~3.0 kgf•m

#### TOOLS

Oil filter wrench      A120E00061

## 4. LUBRICATION SYSTEM

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### TROUBLESHOOTING

#### Oil level low

- Oil consumption
- External oil leak
- Worn piston ring
- Incorrect piston ring installation
- Worn valve guide or seal

#### Oil contamination (White appearance)

- From coolant mixing with oil
  - Faulty water pump mechanical seal
  - Faulty head gasket
  - Water leak in crankcase

#### No oil pressure

- Oil level too low
- Oil pump drive chain broken
- Oil pump drive sprocket broken
- Oil pump damaged (pump shaft)
- Internal oil leak

#### Low oil pressure

- Pressure relief valve stuck open
- Clogged oil filter and strainer screen
- Oil pump worn or damaged
- Internal oil leak
- Incorrect oil being used
- Oil level too low

#### High oil pressure

- Pressure relief valve stuck closed
- Plugged oil filter, gallery, or metering orifice
- Faulty oil pump

#### Seized engine

- No or low oil pressure
- Clogged oil orifice/passage
- Internal oil leak
- Non-recommended oil used

#### Oil contamination

- Deteriorated oil
- Faulty oil filter
- Worn piston ring (White appearance with water or moisture)
  - Damaged water pump mechanical seal
  - Damaged head gasket
  - Oil relief not frequent enough

#### Oil pressure warning indicator does not work

- Faulty oil pressure switch
- Short circuit in the indicator wire
- Low or no oil pressure

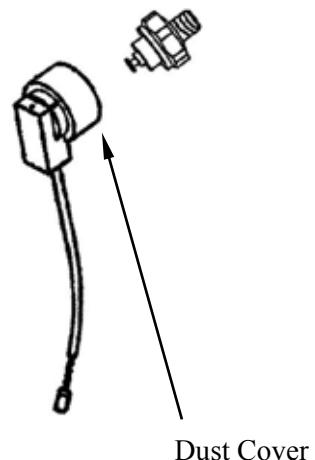
## 4. LUBRICATION SYSTEM

### OIL PRESSURE SWITCH

#### CHECK

Start the engine.

Check the oil pressure indicator goes out after one or two seconds. If the oil pressure indicator stay on, stop the engine immediately and determine the cause.

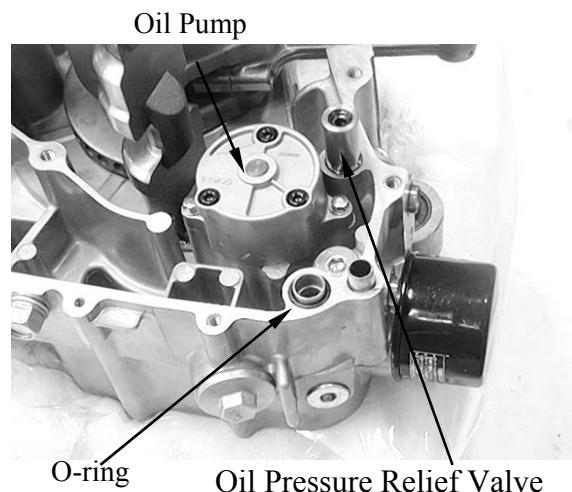


### OIL PRESSURE RELIEF VALVE / OIL PUMP

#### REMOVAL

Remove the right crankcase cover.

Remove the pressure relief valve and O-ring from the right crankcase

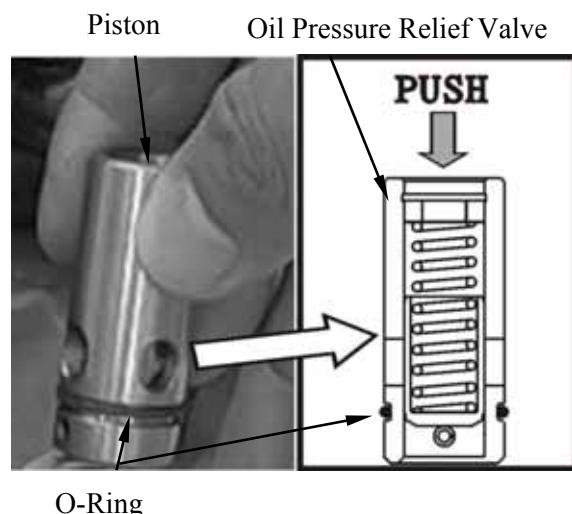


#### INSPECTION

Check the operation of the pressure relief valve by pushing on the piston.

#### INSTALLATION

Apply oil to a new O-ring and install the pressure relief valve groove, and install the relief valve to the right crankcase.

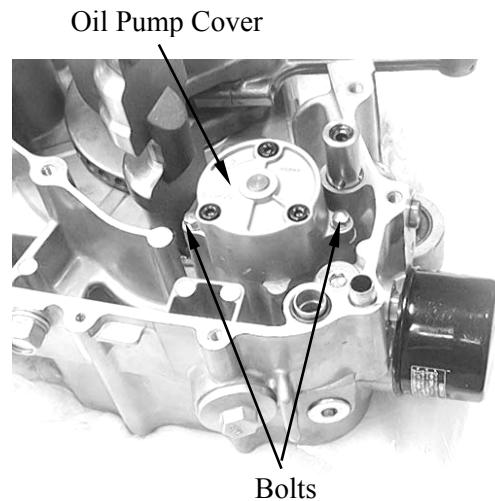


## 4. LUBRICATION SYSTEM

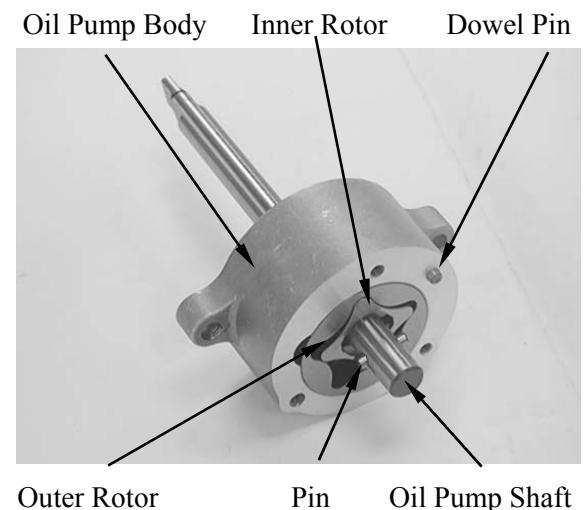
### OIL PUMP

#### DISASSEMBLY

Remove bolts and oil pump cover.



Remove the dowel pin, pin, oil pump shaft, oil pump outer rotor and inner rotor.



## 4. LUBRICATION SYSTEM

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### INSPECTION

Temporarily install the oil pump shaft. Install the outer and inner rotors into the oil pump body.

Measure the tip clearance.

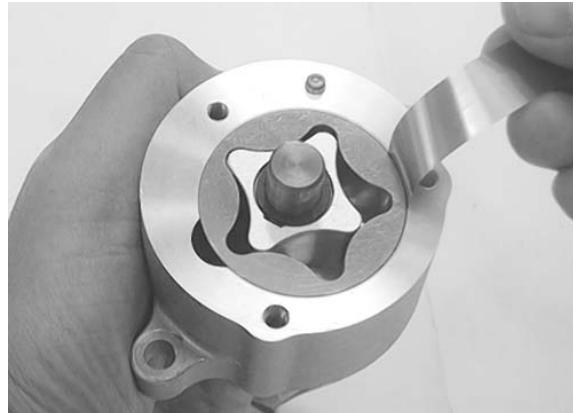
**Service limit: 0.2 mm (0.008 in)**

\* Measure at several points and use the largest reading to compare the service limit.



Measure the pump body clearance.

**Service limit: 0.25 mm (0.01 in)**



Measure the side clearance with the straight edge and feeler gauge.

**Service limit: 0.12 mm (0.0048 in)**

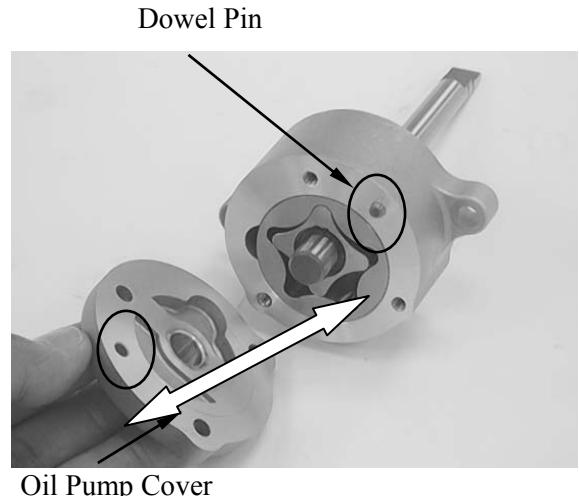


## 4. LUBRICATION SYSTEM

### ASSEMBLY

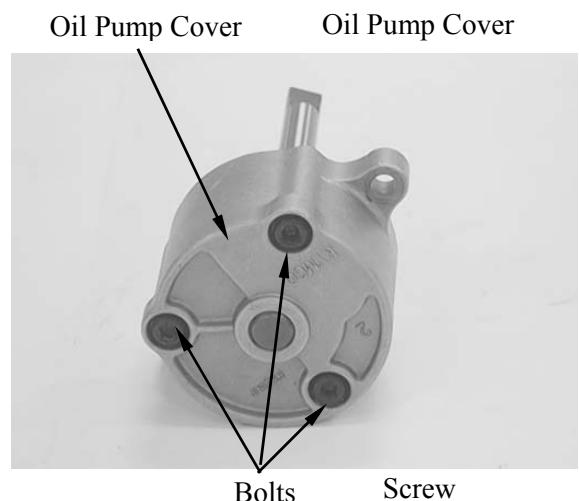
Dip all parts in clean engine oil.

- Install the outer rotor into the oil pump body.
- Install the inner rotor into the outer rotor.
- Install the oil pump shaft.
- Install the pin onto the oil pump body.
- Install the oil pump cover onto the oil pump body by aligning the dowel pin.



- Install and tighten the bolts to the specified torque.

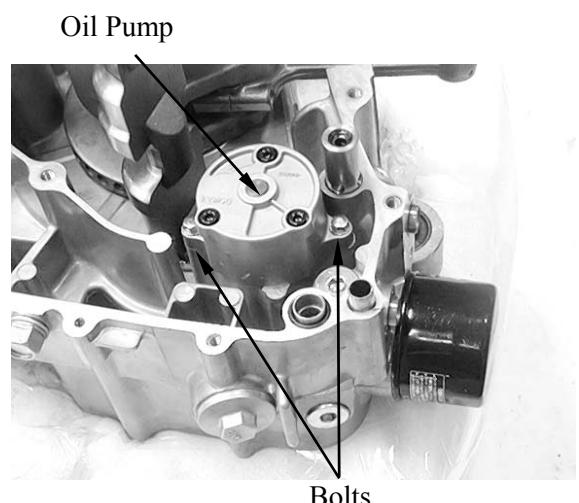
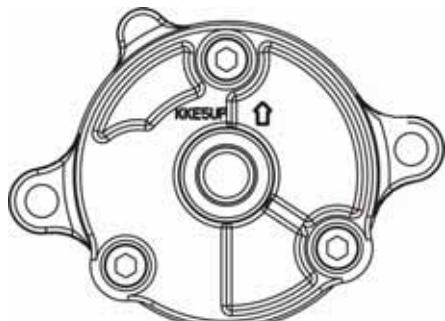
**Torqu: 1.2 kgf•m**



### INSTALLATION

Install the oil pump and tighten the two bolts securely.

\* Make sure the pump shaft rotates freely and arrow on the oil pump is upside.



## 4. LUBRICATION SYSTEM

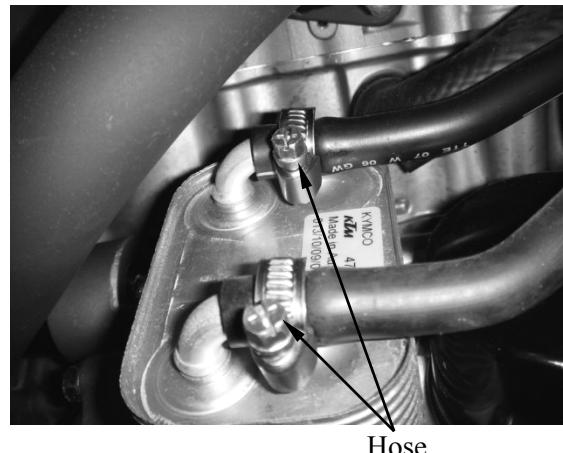
### OIL COOLER

#### REMOVAL

Drain the engine oil and remove the oil filter cartridge.

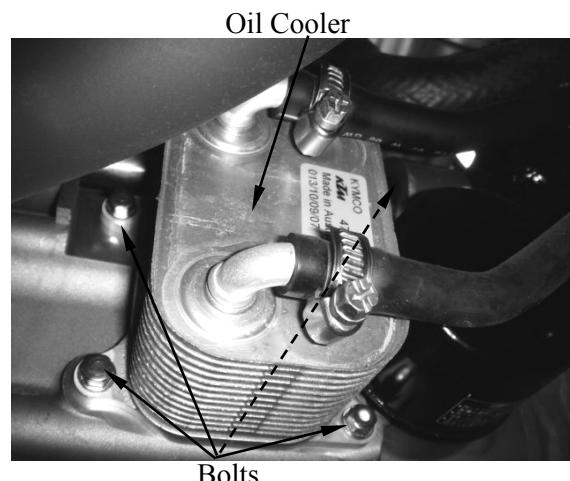
Drain the coolant from the system.

Loosen the hose bands and disconnect the oil cooler hoses from the cooler.



Hose

Remove the oil cooler mounting bolts, oil cooler.

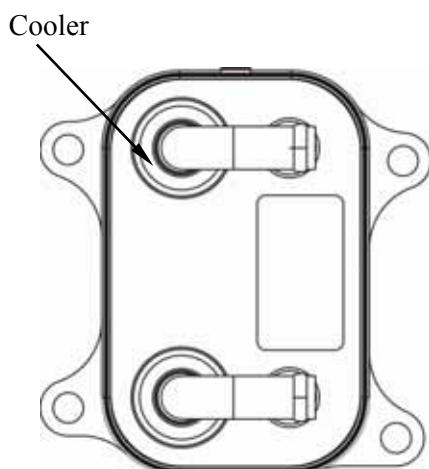


Oil Cooler

Bolts

### INSPECTION

Check the cooler for damage.



## 4. LUBRICATION SYSTEM

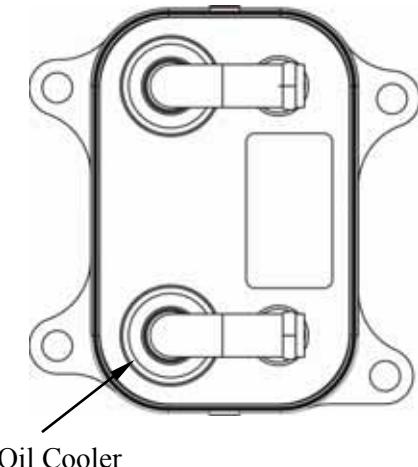
### INSTALLATION

Install the removed parts in the reverse order of removal.

Install the oil cooler bolts with the specified torque.

**Torque: 0.8~1.2 kgf·m**

Remember to install the dowel pin(15x10)  
And O-ring (14.8x2.4)



## 4. LUBRICATION SYSTEM

Installation of oil filter cartridge

Standard Torque:

Oil filter cartridge 1.2~1.8 kgf•m

